5
2465

To be returned to:

UNIVERSITY OF LONDON LIBRARY DEPOSITORY,

SPRING RISE,

EGHAM,

SURREY.

From
THE LONDON SCHOOL OF HYGIENE
AND TROPICAL MEDICINE,
KEPPEL STREET,
LONDON, W.C.1.

LONDON SCHOOL OF
LIBRARY
Digitized by the Internet Archive
in 2020 with funding from
Wellcome Library
https://archive.org/details/s2465id1378965

WELLCOME INSTITUTE
LIBRARY
Coll. welMOmec
Call
No

TRANSACTIONS

OF THE

MEDICAL AND PHYSICAL SOCIETY

OF

BOMBAY.

FOR THE YEAR M.DCCC.XLI.

BOMBAY:

PRINTED AT THE AMERICAN MISSION PRESS,

BY E. A. WEBSTER.

1841.

No. IV.

1309

LONDON SCHOOL OF
LIBRARY
TROPICAL MEDICINE

MEDICAL AND PHYSICAL SOCIETY

OF

BOMBAY.

Patrons.

Ex-Officio.

THE MEDICAL BOARD OF BOMBAY,

AND DEPUTY INSPECTOR GENERAL OF HOSPITALS.

Committee of Management for 1841.

President,

J. McADAM, Esq.

Members,

R. H. KENNEDY, M. D.
J. GLEN, Esq.
J. McLENNAN, Esq.
J. F. HEDDLE, Esq.

Secretary.

C. MOREHEAD, M. D.

CONTENTS.

ART. I. — Experiments illustrative of the Physiological effects of Calomel on the Gastro-intestinal mucous membrane of Dogs. By J. Murray, Esq. 1

—— II. — Report on the Diseases which have occurred in the H. C.'s Steam Flotilla on the rivers of Mesopotamia, from the 1st January, to the 31st December, 1839, with a short sketch of the Climate and Topography. By John C. Floyd, Esq. Surgeon in charge 27

—— III. — Report of the 1st Troop Horse Brigade, stationed at Sholapoor, Poona, and on Field Service in Scinde, for the years 1838, 1839, and 1840. By A. H. Leith, Esq. 46

—— IV. — Statistical Review of the Climates of the princial Stations for European Troops in the Bombay Presidency. By R. H. A. Hunter, Esq. H. M.'s 2d or Queen's Royal 75

—— V. — On the Jungle Fever of Candeish. Extracted from the Annual Report of the 15th Regiment N. I. for the year, 1840. By A. Graham, Esq. 86

—— VI. — Observations on the Dracunculus as it prevailed in the 22d Regiment, N. I. from April till September, 1841. By D. Grierson, Esq. 90

—— VII. — Notes sur la plaie du Yemen, offrant l' analyse d' une monographie de cette Maladie. Par M. Le Lieutenant Colonel Dr. Chedufay, Medecin Inspecteur des armées d' Arabie. 94

—— VIII. — Report on the Medical Statistics of Quetta. By A. H. Leith, Esq. 101

APPENDIX.

1. — Catalogue of Medicines found in the Bazaars of Hydrabad, Khyrpur and Shikarpur. By the late P. B. Lord, M. D. 115

2. — General Remarks on the remedial effects of the extract of Ganja as observed at the Native General Hospital at Bombay: forwarded with two cases of Tetanus, treated in that Institution. By A. Graham, Esq. 128

3. — Extract from the Annual Report of the sick in Hospital of the 10th Regiment, N. I. Stationed at Aden, for 1840. By C. Black. Esq. 133

4. — Extract from the Second half yearly Report of the Oculists Department, for 1840. By M. Stovell, Esq. 135

5. — Case of Hydrophobia..... 136
6. — Case of extensive Tubercular deposition over the convex surface of the Brain, with softening of the left hemisphere, and slight serous effusion into the lateral Ventricles. By J. Murray, Esq..... 137
7. — Notes on the Climate, &c. of Dadur. By J. Deas, Esq..... 141
8. — Obscure Case of Phthisis Pulmonalis. By J. D. Campbell, Esq. · 144
9. — Letter on the treatment of the Aden Ulcer from Dr. Pruner, Chief Physician to the Military Hospital and Professor in the Medical College at Cairo, to the Members of the Medical Board in Bombay. 146
10. — Bombay Branch of the Royal Asiatic Society..... 147

Quarterly Proceedings of the Medical and Physical Society of Bombay.. 149
List of Donations for the Library · · · · · · · · · · · · · · · · · · 153
List of Members of the Medical and Physical Society of Bombay · · · 155

TRANSACTIONS.

1841.

TRANSACTIONS

OF THE

MEDICAL AND PHYSICAL SOCIETY

OF

BOMBAY.

1841.

Article I.

Experiments illustrative of the Physiological effects of Calomel on the Gastro-intestinal mucous membrane of dogs.

By J. Murray, Esquire.

Presented February, 1841.

The following experiments, which have been prosecuted at intervals of leisure during the last two years, were undertaken for the purpose of determining the physiological effects of calomel and other mercurial preparations on the alimentary canal of dogs, and of thence endeavouring to deduce their probable therapeutic operation on the human species.

I am fully sensible of the objection that may be taken to such experiments, on the ground of the possible diversity of action of medicinal agents on the lower animals, as compared with their operation on man. This objection, however, probably applies with less force to experiments on dogs than to those on any other animals. Their diet is very analagous to that of man, and the numerous experiments of Orfila appear to have established, with a very few exceptions, a similarity of effect from the administration of poisonous agents. We are probably, therefore, entitled to assume, that whatever dissimila-

rity of action may be exerted by mercurial preparations on man and on dogs, will be a difference in degree, not in kind.

There is another and a more important objection, which may be urged against the utility of these and similar experiments. I allude to the different effects on the living system of substances administered in a state of health and of disease. Hence their therapeutic qualities cannot always be correctly ascertained, though in many instances they may be safely inferred, from their physiological operation.

The considerations, which have now been stated, necessarily tend very materially to lessen the practical utility of the following experiments, and probably to render them unworthy of being submitted to the Society. But, should they serve no other useful purpose, they may perhaps be considered to possess the negative merit of testing the accuracy of some similar experiments performed by Mr. Annesley, which, having been extensively applied by their author to the treatment of Indian diseases, have probably exerted a considerable degree of influence on medical practice in this country.

The operation of mercury is stated by writers on materia medica, to be that of a general stimulant, exerting its action more especially on the glandular and absorbent systems, and promoting the secretions of the liver, bowels, skin, and salivary glands.* But, so far as I know, the direct anatomical effects of calomel on the capillary circulation of the gastro-intestinal mucous membrane had not been made the subject of experimental enquiry until Mr. Annesley instituted some experiments on dogs in 1823, from the results of which he drew the following inferences; 1st. That the natural and healthy state of the stomach and intestinal canal in dogs is that of high vascularity.—2d. That calomel, when administered in large doses, diminishes the vascularity of the mucous surface of the stomach. —3d. That it excites the arterial capillaries in the mucous coats of the colon.—4th. That it attenuates and detaches the mucous secretions from the intestinal surfaces to which they adhere.†

* Murray's Materia Medica, 3d Ed. I. 195.—Thomson's London Dispensatory, Art. Hydrargyrum.

† Annesley's Sketches of Indian Diseases, 395, 397, 400, 405.

The results of these experiments are considered by Mr Pereira,* to be so improbable, that without further evidence he refuses to admit their accuracy ; while, on the other hand, they are quoted by Dr. Copland as having " determined a most important fact," and as having " explained the results of clinical observation."† From the existence of so remarkable a discrepancy of opinion on the subject between two principal authorities in therapeutics and practical medicine, the theory of the local operation of calomel may be considered as still open for further investigation.

While I append to this paper a detailed account of the experiments which I have recently instituted on this subject, in the order and form in which they were originally made and recorded, it will be sufficient to introduce here a tabular analysis of them, commencing with those intended to illustrate the natural appearance of the organs, and arranging the others according to the quantities of calomel given in each instance, but retaining the original numbers so as to admit of a ready reference to the more detailed account.‡

It will be observed that the dogs were put to death in three different ways — by hanging, drowning, and shooting in the head. The first of these modes of death, from its tendency to produce vascular congestion, would not have been resorted to, had it not been the one adopted by Mr. Annesley, the verification of whose experiments was one of the objects which I had in view. Care was taken that the dogs should not be killed during the process of digestion.

* Pereira's Lect. on Mater. Medic. Medical Gazette, xviii. 468.

† Copland's Dict. of Pract. Medicine, Art. dysentery. I. 731.

‡ I acknowledge, with pleasure, my obligations to Dr. Waller for his kind assistance in conducting several of the experiments referred to.

A Tabular Synopsis of Fifteen Experiments on Dogs.

Number of Experiments.	Quantity of calomel taken.	Action during life.	Mode of death.	Appearances on Dissection.				
				Stomach.	Small Intestines.	Large Intestines.	Liver and Gall Bladder.	Other Organs.
I.	None.		Hanging.	Pale coloured externally. Internally much corrugated, and of a pale greyish-white colour; muscular tunic considerably thicker than in the human subject. Cavity nearly empty.	Externally pale coloured. Mucous membrane pale and smooth. Canal firm and contracted. Cavity empty.	Externally pale coloured. Mucous membrane pale, throughout. Canal firm and contracted. Some dry feculence in cæcum.	Liver of deep red colour, and emitting, when incised, a considerable quantity of blood. Gall bladder distended with thin limpid bile.	Spleen of a dusky red colour, with a milky tinge, on its upper surface,
III.	None.	Evacuations of dark grey colour.	Hanging.	Externally pale, with a very slight rose tinge. Cavity containing some yellow adherent bilious-looking fluid ; much corrugated longitudinally; mucous membrane of pale greyish colour.	Externally pale, with a very slight rose tinge. Canal firm and contracted. Duodenum containing a good deal of yellow bilious-looking fluid ; mucous membrane checquered with numerous, irregular, elevated, dusky red patches. Mucus in jejunum ; red patches, fewer, smaller, and less elevated than in duodenum. Ileum of greyish colour, and containing mucus.	Externally pale, with a very slight rose tinge. Canal firm andcontracted Cæcum, colon and rectum, filled with thin, dark feculence, and presenting a few reddened streaks.	Liver as in Experiment i. Gall bladder distended with thin darkish coloured bile.	Spleen as in Experiment i.
VIII.	None.		Drowning.	Externally of a very pale rose tint. Cavity empty. Internal surface longitudinally	Externally of a very pale rose tint. Bowel contracted and firm. In upper part of duodenum a small quantity of an orange co-	Externally of a very pale rose tint. Bowel contracted andfirm. Somedark	Liver a shade lighter than in the preceding Experiments. Gall blad-	Spleen considerably enlarged and softened.

				corrugated, and of a pale lilac colour but white and smooth for about an inch and a half around the pylorus.	loured frothy fluid, in lower portion, it looked like thick congee of a milky colour. Mucous membrane generally pale coloured, with irregular, elevated, dusky-red patches. Mucous surface of jejunum and ileum like that of duodenum, with less marked patches. Jejunum empty. Ileum containing a little orange coloured frothy fluid.	feculence in colour: its inner surface of pale greyish colour with longitudinal corrugations less numerous and prominent than those of stomach.	der containing a little dark thin bile.	
XII.	Four doses of 5 grains each.	Vomited an hour after the first and third doses: several dark evacuations.	Shooting in the head.	Externally of a pale pinkish colour, containing half an ounce of orange-coloured frothy fluid. Inner surface longitudinally and densely corrugated. Capillaries of the projecting convex border of corrugations minutely injected; remaining portion of a pale lilac colour.	Externally of a pale pinkish colour. Duodenum containing a viscid dark orange coloured frothy fluid. Inner surface presenting here and there dusky-red streaks of what appeared a sanguinolent extravasation, beneath which membrane pale. Mucous membrane of jejunum of a pale greyish colour, with a few capilliform streaks. Ileum of a greyish colour with a few injected streaks, and a slight sanguineous exudation. A small quantity of dark-green frothy fluid in upper part.	Externally of a pale pinkish colour. Inner surface longitudinally corrugated and minutely injected.	Liver of a deep mahogany colour and not bleeding on incision. Gall bladder filled with very dark green liquid bile.	Spleen of usual appearance. Large vessels of mesentery much injected.
XIII.	Four doses of 5 grains. each.	Vomited an hour after the last dose. One dark dejection.	Shooting in the head	Externally greyish-white with a slight pink hue, containing a pale drab coloured, viscid, muciform fluid Its mucous membrane presenting a pale grey blanched appearance.	Externally greyish white, with a slight pink hue. Upper portion of duodenum containing a little of the same fluid as in the stomach, with a very slight admixture of bile; lower portion containing an ash-coloured viscid fluid. Inner surface of duodenum and jejunum pale grey. That of ileum generally pale, with numerous small detached patches of effused blood in upper portion.	Externally greyish white, with a slight pink hue, containing a fluid similar to that in duodenum. Mucous surface pale and longitudinally corrugated.	Liver of a light mahogany colour, and giving out liquid blood, on incision. Gall bladder filled with liquid dark-green bile.	Spleen of usual appearance.

Number of Experiments.	Quantity of calomel taken.	Action during life.	Mode of death.	Appearances on Dissection.				
				Stomach.	Small Intestines.	Large Intestines.	Liver and Gall Bladder.	Other organs.
XIV.	Four doses of 10grains each.	Once purged	Shooting in thehead	Externally greyish-white with a faint red tinge. Containing some half digested rice. Inner surface longitudinally and densely corrugated, and of a pale lilac colour.	Externally greyish white, with here and there a faint red tinge. Duodenum containing a little orange-coloured frothy fluid: its mucous surface of a greyish white colour. Jejunum of the same colour, with here and there a little sanguineous extravasation on its inner surface. Ileum containing thin half digested feculence: its mucous membrane of a faint rose tint.	Externally greyish white, with a faint red tinge. Colon longitudinally corrugated. The upper portion of its mucous membrance presenting a large patch of dotted bright red appearance: the lower portions greyish-white. Thin feculence in cæcum and rectum.	Liver of a deep mahogany colour, and emitting a small quantity of blood on incision. Gall bladder containing dark liquid bile.	Spleen of natural appearance. Mesenteric trunks injected. Bladder contracted & empty; its mucous membrane of a faint rose tinge.
X.	Three doses of 15 grains Pil. Hydr. each.	Dark coloured dejections.	Drowning.	Capillary injection of external surface, containing a little soup. Internal surface longitudinally corrugated, and of a pale lilac colour, assuming a pinkish hue on washing and exposure to the air.	Capillary injection of external surface. Canal firm and contracted. Duodenum containing an orange coloured, slightly frothy gelatinous fluid. Internal surface presenting a uniform fleshy granular like appearance, resembling a raw excoriated surface. Over the lower two thirds, six or eight circular patches, of the size of a sixpence, with raised borders, and their inner area on the same level with the surrounding surface. In jejunum and ileum irregular fleshy patches; rest of the surface pale and smooth.	Capillary injection of external surface. Canal firm and contracted, containing a little dark soft feculence. Inner surface of colon irregularly and closely corrugated and of a uniform bright red colour.	Liver of the same colour and appearance as before. Gall bladder distended with dark bile.	Spleen of the same appearance as before. Capillary injection of the omentum and mesentery. Urinary bladder much distended; and the capillaries of its mucous membrane minutely injected.

V.	Three doses of one scruple each.		Hanging.	Externally pale coloured, with faint reddish tinge, containing undigested rice. Inner surface corrugated, and of a uniform bright red tinge as in Experiment ii.	Externally pale, with a faint reddish tinge. Canal firm and contracted. Duodenum empty: its mucous membrane of greyish colour, with numerous irregular, elevated, dusky-red patches. Similar but paler, patches in jejunum, which contained yellow bile. Still fewer, smaller, and less deeply coloured patches in Ileum.	Externally pale with a faint reddish tinge. Canal firm and contracted. Cæcum and colon full of thin greenish feculence. Inner surface of light greyish colour with a very faint reddish tinge and corrugated longitudinally.	Liver as described in Experiment i.	Spleen as described in Experiment i.
XI.	Three doses of two drachms each.	Greenish and dark dejection. Vomiting half an hour after each dose.	Drowning.	Externally very slightly injected. Containing 2 spoonfuls of dark forthy fluid. Inner surface corrugated longitudinally, and of a deep red colour, particularly on projecting borders of corrugations, which appeared as if dipt in blood.	Externally pale. Bowel contracted, particularly jejunum and ileum. Duodenum containing orange-coloured fluid. Inner surface presenting streaks, and irregular patches, of a deep red colour, apparently caused by a sanguiform effusion, beneath which the membrane pale, thin, and entire. Inner surface of jejunum and ileum pale generally, with small patches smeared with a grumous effusion, the corresponding portions of peritoneal coat livid.	Externally pale. Bowel contracted. Inner surface of colon longitudinally and thinly corrugated, of a deep red colour, with a smearing of effused blood on projecting borders of corrugations.	Liver of usual appearance Gall bladder distended with unusually dark bile.	Spleen of usual appearance, considerable injection particularly of the larger vessels, of omentum and mesentery.
II.	Two doses of one drachm each.	Dark coloured liquid motions: vomiting.	Hanging.	Externally of a reddish tinge, without much injection of the large vessels. Cavity containing a good deal of yellow frothy bilious looking matter, mixed with some transparent gelatinous substance. Internal surface much corrugated longitudinally, and of a uniform bright-red tinge.	Externally of a reddish tinge without much injection of the large vessels. Canal firm and contracted. Duodenum containing a great quantity of dark-bile. Inner surface of a red tinge, with raised patches of a darker red, which proved to be a sanguineous or sanious effusion beneath which the membrane was entire but reddened. Less corrugated than stomach. Ileum empty, more corrugated and less reddened than duodenum and jejunum.	Externally of a reddish tinge, without much injection of the larger vessels. Bowel firm and contracted. Cæcum and colon slightly corrugated internally and of an intensely red colour, with patches of red sanious secretion as in duodenum. Rectum of a less bright red colour. No feculence.	Liver of a deep red colour, and giving out, when cut, a considerable quantity of liquid blood. Gall bladder distended with thickish blackish coloured bile.	Spleen of a dusky red colour.

Number of Experiments	Quantity of calomel given.	Action during life.	Mode of death.	Appearances on Dissection.				
				Stomach.	Small Intestines.	Large Intestines.	Liver and Gall Bladder.	Other organs.
IV.	One drachm.	Evacuations dark coloured, but more consistent than in Experiment ii.	Hanging.	Externally of a reddish tinge, containing a little unadherent bile; much corrugated longitudinally, and mucous membrane of a uniform intensely red colour, particularly on the projecting part of the corrugations.	Externally reddened (without injection of the large vessels) firm, and contracted. Duodenum containing a little bile, and presenting the same redness and patches of sanguineous extravasation on the mucous surface, as in Experiment ii. Jejunum and ileum slightly reddened.	Externally reddened (without injection of the large vessels) firm and contracted. Mucous membrane of colon reddened, but less so than in Experiment ii. A good deal of thin dark feculence in cæcum and colon.	Liver of dark red colour, and not emitting so much blood as in Experiment i, ii, and iii, Gall bladder distended with thin darkish bile.	Spleen of a dusky red colour.
VII.	Two doses of one drachm each.	Several thin motions the first yellowish the other dark. First dose rejected. Retention of the 2nd dose doubtful.	Drowning.	External appearance as in Experiment vi. containing a small quantity of thin pale, orange coloured frothy fluid. Mucous membrane of a pale grey colour.	External appearance as in experiment vi. Duodenum lined with a whitish adhesive fluid. Inner surface of the whole of the small intestines presenting several elevated, irregular dusky-red patches, not removable with handle of scalpel, the rest of the surface of a greyish pale red colour.	External appearance as in Experiment vi. Empty longitudinally corrugated. Mucous surface of the same colour as the stomach.	Liver as in Experiment vi. Gall bladder partially distended with very dark-coloured bile. Ductus choledochus permeable.	Spleen as in Experiment vi.
XV.	Three doses of one drachm each.	Vomited repeatedly after each dose. Several times purged after first dose.	Shooting in the head.	Minute ramiform injection of the peritoneal coat, containing about an ounce of orange coloured, frothy fluid. Internal surface longitudinally corrugated, and of	Externally of reddish-white colour, firm and contracted. A small quantity of orange frothy fluid in upper part of duodenum; mucous membrane injected in streaks, and presenting several bleeding points. Remainder of duodenum and	Externally of a reddish white colour, firm and contracted. Cæcum containing a muco-serous fluid, and minutely and vividly injected. Colon	Liver of mahogany colour, soft consistence and bleeding freely on incision. Gall bladder filled with dark liquid bile.	Increased vascularity both of capillary and large vessels of the omentum, mesenteric trunks injected. Kidneys emitting an unusually large quan-

				a uniform bright red tint, with a few bleeding points on the projecting borders of corrugations.	the jejunum coated with very viscid congee-like mucous beneath which the mucous surface presented irregular, elevated dusky-red patches, with here and there small patches of extravasated florid blood. Ileum containing muco-sanguineous fluid, with capillary injection of part of its surface.	densely corrugated, longitudinally in the upper portion, and transversely in the lower. Whole of its inner surface of a uniform and intensely red colour. A little muco-serous fluid in rectum.		tity of blood on incision. Bladder empty and contracted; uniform bright capillary injection of its mucous membrane.
VI.	Two doses of two drachms each.	Dejections dark coloured. Salivated (first dose rejected.)	Drowning	Externally of a pale rose colour, containing about 3 oz. of dark yellowish green frothy fluid. Inner surface presenting longitudinal corrugations, the raised surfaces of which had a bright red injected appearance. Surface between the corrugations of a palish lilac grey, and here and there having a granulated appearance.	Externally of a pale rose colour. Bowel firm and contracted. Duodenum lined with a slightly tenacious deep orange coloured frothy matter. The inner surface presented an irregular elevated reddened appearance, partly caused by a sanguineous or sanious secretion, beneath which the membrane appeared entire and of a pale rose-tinge. In the ileum the fluid was less abundant, darker coloured and more consistent. Surface of jejunum and ileum less reddened than duodenum.	Externally of a pale rose colour. Bowel firm and contracted. Colon irregularly corrugated, and containing a small quantity of the same dark coloured fluid as in the ileum. Mucous membrane injected, but less so than the stomach.	Liver of a dark mahogany colour, and emitting, when cut a small quantity of liquid blood. Gall bladder partly distended with dark greenish blackbile.	Spleen of a bluish red colour.
IX.	Two doses of two drachms each.	Loose dark evacuations with slime and a little blood.	Drowning	Externally of a pale pink colour, containing a considerable quantity of frothy orange coloured fluid. Corrugated longitudinally. Mucous membrane of central portion presenting a bright injected appearance, particularly on convex surface of corrugations, which looked as if blood had been effused on them: rest of the membrane had a rose tint.	Externally of a pale pink colour. Upper portion of duodenum containing an orange coloured fluid, in middle portion a muddy serous-like fluid with coagulated flakes; and lower portion coated with a sanguineous or sanious fluid, beneath which the membrane was pale and entire. On inner surface numerous dusky elevated patches. Jejunum empty and pale Ileum lined, successively, with a sanguineous, sanious, and grumous fluid.	Externally of a pale pink colour. On inner surface of colon, longitudinal, sharpened corrugations the convex surface of which was slightly injected.	Liver of the same colour, consistence and size as in former experiments. Gall-bladder very much distended with dark bile: ductuscholedochus quite permeable.	Spleen of the same colour, and size as in former experiments.

The following conclusions appear to be deducible from the preceding series of experiments.

1st. When administered to dogs in doses of from five to thirty grains, calomel occasions, in a less or greater degree, a preter-natural afflux of blood to the minute arteries and capillaries of the gastro-intestinal (more particularly the gastric and colic) mucous membrane, imparting to that tissue a capilliform, punctiform, or uniform red tinge. This increased vascularity, which is slightly marked after doses of five and ten grains (Experiments xii, xiii, and xiv,) becomes more perceptible in doses of twenty and thirty grains, and is accompanied with more or less sanguineous effusion on the mucous surface, either in dots (like bleeding points) or in small streaks or patches (Experiments v, xi.)

2d. In the abovementioned doses it increases the flow of bile into the duodenum; and

3d. It increases the secretion from the intestinal mucous follicles and serous exhalants.

4th. When administered in doses of one, two, and three drams, it produces, in addition to a greater amount of the preceding effects, capilliform injection of the peritoneal coat of the stomach and bowels, and alters, as well as increases, their internal secretions, occasioning a sanguineous, or dark grumous, or sanious, or sero-albuminous effusion on the inner surface of the bowels, particularly of the colon. (Experiments ii, iv, vii, xv, vi, ix.) In one experiment (ix) all these different kinds of secretion (resembling the appearances in acute dysentery) were found in the small intestines of the same dog, and must have been of recent formation, as they had not passed into the colon. Under the influence of these doses, also, bile flows into the cavity of the stomach.

These results appear to me conclusively to establish, that calomel excites and increases (and, under certain circumstances, modifies) the physiological actions of the minute arteries, capillaries, and secretory vessels of the gastro-enteric mucous membrane; and that these effects are in some degree proportioned to the largeness of the dose administered.

The apparent discrepancy between the results of these experiments and those obtained on a more limited scale by Mr. Annesley in regard to the stimulant or sedative action of calomel on the capillary blood vessels of the gastric mucous membrane (for there is an exact correspondence of result regarding its action on the colon) appears to

be partly attributable to that author's having inferred, from two experiments, that the natural and healthy state of the stomach and bowels is that of high vascularity — an opinion which is opposed, I believe, to that of almost all anatomists, and is directly at variance with Experiments i, iii, and viii. The discrepancy in reference to its operation on the intestinal mucous secretion is perhaps more a difference of interpretation than any real discrepancy of results— Mr. Annesley having attributed to calomel the property of chemically dissolving and detaching the mucus from the surface to which it adheres, while I have seen reason to believe that it stimulates the mucous and serous exhalants to a preter-natural increase of their secretion, which combines with, and dilutes, the inspissated mucus previously lodged in the bowels.

I will not venture to draw any therapeutic deductions from these experiments further than to express my belief that they will be found not opposed to clinical observations. Admitting the direct stimulant or irritant operation of calomel on the healthy gastro-enteric mucous capillaries to have been established, it by no means follows that this remedy should not exert an antiphlogistic or contra-stimulant action on these vessels when preternaturally dilated and distended by disease. On the contrary, such a therepeutic effect would be accordant with the analogous operation of other remedies,* and would admit of a satisfactory explanation. To say nothing of the indirect antiphlogistic effect resulting from an increase of the different abdominal secretions, calomel may be supposed to aid in re-establishing the healthy contractility of the distended capillaries, whereby their diameters will be lessened and their morbid vascularity reduced — an effect which will be greatly facilitated by combination with such remedies as directly allay the nervous irritability of the affected tissues.

If it be asked what practical benefit can result from the discussion of the theory of the direct and primary operation of calomel, provided its ultimate agency in subduing inflammatory action in the mucous membrane of the stomach and bowels be admitted — it may be answered, that, as mercury sometimes removes, sometimes aggravates,

* An analogous action may be traced in tartar emetic, which (as is well known) has a powerful effect in controlling pulmonary inflammation, and yet, when given in poisonous doses, has been found by Magendie to produce, generally inflammation, and sometimes even hepatization, of the lungs. Christison on poisons. 2d Ed. 18. The effect of disease in modifying the action of other medicines is well known

these morbid affections, a knowledge of its mode of operation might enable us to reconcile these discrepancies, and thus give greater precision to its administration. A single illustration will shew its bearing on medical practice.

If calomel in large doses (as contended for by Mr. Annesley) possess a direct sedative effect on the gastric capillaries, or if (in the words of Dr. Copland*) it directly "diminishes vascular action in the villous coat of the stomach," it follows, that, in all cases of inflammation, or of simple increased vascular action, in that tissue, large doses of this medicine must always be productive of more or less benefit, and cannot possibly be prejudicial: — but if, on the other hand, its physiological effect be to excite or increase arterial and capillary action, it is probable that the more acute forms, or the earlier stages, of the affections referred to, would be aggravated, rather than benefited, by large doses of calomel, until the gastric capillaries should be previously depleted, and perhaps their increased action in some measure subdued.† With these few observations I dismiss the subject in the hope that it may engage the attention of other members of the Society, possessing better opportunities and qualifications for carrying it out. The subject is one of high importance to practical medicine; and its further prosecution might, at the same time, tend to throw some light on the obscure and disputed subject of the theory of inflammation. The few and imperfect experiments now submitted to the society, in conjunction with clinical experience, tend to favour the doctrine recently advocated by Dr. Carswell, that inflammation presents two successive stages, each of which is referrible to opposite conditions of the physiological properties of the affected tissue.‡

It need scarcely be added, in conclusion, that these experiments are not calculated to throw any light on the remote agency of mercury in controlling disease in organs and tissues with which it does not come into immediate contact.

* Copland's Dict. of Pract. Med. ii. 337.

† It is worthy of notice that Mr. Annesley administers large doses of calomel with equal freedom in inflammatory affections of the stomach and of the colon; although he labours to prove that it *increases* vascular action in the *former*, and *diminishes* vascular action in the *latter*, organ.

‡ Carswell's Illustrations of the elementary forms of disease. Fasc : xii.

Detailed Statement of the Experiments made with Calomel.

I. — On the 25th December 1837, a healthy looking dog, that had been confined for two days and fed on weak broth was hanged, and opened by me a quarter of an hour after. No broth was given after the morning of the 24th.

Liver of deep red colour, and emitting, when incised, a considerable quantity of liquid blood. Gall bladder distended with thin limpid bile. Spleen of a dusky-red colour, with a milky tinge on its upper surface. Stomach and bowels pale coloured, externally : the latter contracted and having a firm thickened feel throughout. On opening the stomach it was found nearly empty, very much corrugated, and of a pale greyish colour, and its muscular tunic considerably thicker than in the human subject. Small intestines empty, with the exception of some small tape worms ; mucous membrane pale and smooth. Some dry feculence in the cæcum : mucous membrane of the colon pale throughout.

Remarks.—Mr. Annesley states, as the result of two experiments, that " the natural and healthy state of the stomach and intestinal canal is high vascularity."* In the dog which formed the subject of the above experiment, the mucous membrane throughout the whole of the alimentary canal was of a pale greyish white colour.

II. — On the 23d December 1837, at 11 o'clock A. M. I gave a healthy looking dog 3i. of calomel in the form of pill. About an hour and a half after, he vomited what appeared to be the calomel ; and in the course of the day had two motions of natural appearance. Had no food. On the following day at 11 A. M. I gave another pill containing the same quantity of calomel. Did not vomit, and had two or three dark coloured and more liquid motions. Gave some broth in the evening.

On the 25th December at 11 A. M. (forty-eight hours after taking the first dose, which appeared to be rejected, and twenty-four hours after the second.) I had the dog hanged, and examined him a quarter of an hour afterwards.

Liver of deep-red colour, and giving out, when cut into, a considerable quantity of liquid blood. Gall bladder distended with a thickish blackish-coloured bile. Spleen of a dusky red colour. Stomach and bowels presenting externally a reddish tinge, without much injection of the large vessels. Bowels firm and contracted throughout their course. Stomach contained a good deal of yellow frothy bilious-looking matter, firmly adherent to the upper surface, mixed with some transparent gelatinous substance. Muscular coat thick as in the former experiment ; internal surface much corrugated longitudinally ; and the mucous membrane (particularly the central and pyloric portion) of a uniform bright red tinge. Duodenum less corrugated, containing a great quantity of dark bile, and its mucous membrane of red tinge, with here and there raised patches of a darker red, which had a granular appearance when first seen, but which proved to be a sanguineous or rather a sanious secretion

* Sketches of diseases of India, page 397.

which was easily scraped off with the back of the scalpel, leaving the membrane entire but reddened underneath. Ileum containing two or three small tape worms, but otherwise empty, more corrugated and less reddened in colour than the duodenum and jejunum. Cæcum and colon slightly corrugated internally, and of intensely red colour, with patches of the same red sanious secretion, as observed in the duodenum. Rectum of a less bright red colour. No feculence in any part of the canal.

Remarks. — Mr. Annesley, from four experiments, draws the conclusion, that "the first effect of calomel, in large doses, is to diminish vascularity" — that "its operation is directly the reverse of inflammatory."* A very different result is shewn in the foregoing experiment. The whole internal surface both of the stomach, and of the small and large intestines, was in a state of remarkable vascularity : while the sanious secretion on the surface of the duodenum and colon, and indeed the whole appearance of the large bowel, exactly resembled what we observe in acute dysentery. The increased flow of bile into the stomach and duodenum is worthy of remark. That its presence was not the cause of the morbid vascularity may be inferred from the fact, that the greatest degree of vascularity was in the colon, which contained no bile.

III. — On the 29th December, 1837, a healthy looking dog that had been confined for two days, and fed on broth, was hanged and opened half an hour after. Orders were given that no food should be given after the evening of the 28th : but there is reason to think that food was given subsequently with the view of putting a stop to its howling. Motions of dark grey colour. Liver and spleen as in Experiment i. Gall bladder distended with thin darkish-coloured bile. Stomach and bowels externally pale, with a very slight rose tinge. Bowels firm and contracted. The stomach contained some yellow bilious-looking fluid, which adhered tenaciously to the lining membrane. It was much corrugated longitudinally : and mucous membrane of pale greyish colour. Duodenum contained a good deal of what appeared to be yellow bile: its mucous membrane checquered throughout with numerous dusky red patches of irregular figure, sensibly elevated above the surrounding surface, and giving it a rugous appearance. Viscid mucus in the jejunum, the lining membrane of which presented a few patches, smaller and less elevated than in the duodenum. Ileum of greyish colour, and containing viscid mucus. Cæcum, colon and rectum, filled with thin dark feculence, and presenting a few reddened streaks.

Remarks. — The stomach presented the same appearance as in Experiment i. excepting that it contained strongly adherent bile. The rugous appearance of the duodenum and jejunum was not remarked in the former experiment.

* Loc. Cit. 395, 397.

VI. — On the 28th December 1837, at 11 o'clock A. M. I gave to a healthy looking dog (which had been confined for a day) 3i. of calomel in pill. Gave a little broth in the evening. Bowels were twice opened. Motions dark coloured, but more consistent than in Experiments vii. On the 29th December at 11 A. M. (twenty-four hours after taking the calomel) the dog was hanged, and opened half an hour after.

Liver of dark red colour, and not emitting so much blood on incision, as in Experiments i, ii, and iii. Gall bladder distended with thin darkish bile. Spleen of dusky red colour. Stomach externally presenting a reddish tinge. Bowels reddened (without injection of the large vessels) firm, and contracted. Stomach containing a little unadherent bile, and much corrugated longitudinally : and mucous membrane of a uniform intensely red colour, particularly on the projecting part of the corrugations. Duodenum containing a little bile, and presenting the same reddened appearance, and patches of sanguineous secretion, described in Experiment ii. Jejunum and ileum containing tape worms, and slightly reddened. Mucous membrane of the colon, though reddened, much less so than Experiment ii. A good deal of thin dark feculence in the cæcum and colon.

Remarks. — In this experiment the mucous membrane of the stomach was of a more intensely red colour than in Experiment ii, but there was much less reddening of the colon. The calomel acted less on the bowels (the motions being more consistent) than in the former experiment.

V. —On the 12th January 1838, at 11 A. M. I gave a dog 3i. of calomel in pill, which was repeated, at the same hour, on the 13th and 14th, and he was killed by hanging at 11 A. M. on the 15th. Body examined half an hour after. Some soup given on the evening of the 12th and 13th.

Liver and spleen, as described in Experiment i. Bowels firm and contracted, and (together with the stomach) pale coloured, with a faint reddish tinge. Stomach containing a quantity of undigested rice; its inner surface corrugated, and of a uniform bright red tinge, as in Experiment ii. Duodenum empty, its inner membrane of a greyish colour, with numerous irregular, dusky red patches raised above the surrounding surface. Patches of similar size, but of a paler colour, in the jejunum, which contained a good deal of yellow bile. A very few, smaller, and less deeply coloured, patches in the ileum. Cæcum and colon full of thin greenish coloured feculence, its inner surface of light greyish colour, with a very faint reddish tinge, and corrugated longitudinally.

Remarks. — The stomach in this experiment, presented the same appearance as in Experiment ii. and iv. The small intestines presented similar patches to those described in Experiments iii. and the appearance of the colon was also similar, with the addition of longitudinal corrugations.

VI.—On the 16th January 1839, at 11 A. M. I gave to a healthy looking dog (which had been kept from food during the preceding night) 3ii. of calomel in a little moistened bread, which it rejected in about half an hour. On the 17th at 11 A. M. repeated the above dose, which was retained. 18th had one dark coloured motion. Yesterday and to-day gave it a small quantity of weak broth. 19th It appeared to be salivated, there being a good deal of salival discharge from the mouth. At 11 A. M. (forty-eight hours after the second dose of calomel) it was killed by drowning, and inspected half an hour after.

Liver of a dark mahogany colour, and emitted, when incised, a small quantity of liquid blood : spleen of a bluish red colour, stomach and bowels of pale rose colour externally ; the latter firm and contracted. Stomach somewhat distended, and containing about three ounces of a dark yellowish green frothy fluid. Muscular coat thick. The internal surface of the stomach presenting longitudinal corrugations, the raised surface of which had a bright red injected appearance, more especially in the central portion of the stomach, the surface between the corrugations of a palish lilac-grey, and here and there having a granulated appearance. Mucous membrane, within an inch and a half of the pyloric orifice, smooth and but very slightly injected.

Duodenum lined with a slightly tenacious deep orange coloured frothy (bilious looking) matter, on wiping off which, the inner surface of the bowel presented an irregularly elevated reddened appearance, part of which appeared to be caused by a sanguineous or sanious looking fluid, which could be scraped off by the handle of the scalpel, leaving the mucous membrane underneath entire and of a very pale rose tinge. Jejunum was filled with same kind of fluid, but thinner and less adhesive, and of lighter colour. In the ileum the fluid was less abundant, darker coloured, and more consistent. The surface of the jejunum and ileum less reddened in appearance than the duodenum. The colon irregularly corrugated internally, and containing a small quantity of the same dark coloured matter as in the ileum. Its mucous membrane injected, but in a less degree than that of the stomach. Gall bladder partly distended with dark greenish black bile.

Remarks. — We observe here the injected state of the mucous membrane of the stomach, as in Experiments ii, iv, and v. the sanguineous or sanious looking secretion on the surface of the small intestines, as in Experiments ii, and iv,—and the mucous membrane of the colon injected, as in Experiments ii, and iv.

VII. — On the 17th January 1839, at 11 A. M. I gave a healthy dog (which had been kept fasting during the preceding night) 3i. of calomel in moistened bread, which it rejected ten minutes after swallowing it. 18th at 11 A. M. I repeated the same dose, it passed several thin motions during the day the first yellowish, the others dark coloured. Gave it a little weak broth in the evening. 20th at 11 A. M. (twenty-four hours after last dose) it was drowned and examined half an hour after.

Liver, spleen, stomach, and intestine, presenting the same appearance externally as in Experiment vi. Stomach contained a small quantity of thin pale orange coloured frothy fluid. Mucous membrane of a pale grey colour. Gall

bladder partially distended with a very dark coloured bile, which could be easily pressed through the ductus communis choledochus into the duodenum. The duodenum lined with a whitish adhesive fluid. The inner surface of the whole of the small intestines, presenting several elevated, irregular, dusky red patches, not removable with the handle of the scalpel ; all the rest of the surface having a greyish pale red appearance. The mucous coat of the cæcum and colon of the same appearance as the stomach, with longitudinal corrugations, and empty.

Remarks. — This dog unfortunately was not watched, it is uncertain, therefore whether the second dose was retained or rejected ; and consequently no safe conclusions can be drawn from the appearance. The mucous membrane of the stomach, and colon was of pale grey colour ; and the small intestines presented the irregular, elevated, dusky red patches, remarked in almost all the preceding experiments.

VIII. — On the 26th January 1839, at 1 A. M. a healthy looking dog was drowned, after having been fed lightly for two days on broth. The body was examined immediately after.

Liver of healthy appearance, though its colour was a shade lighter than in the former experiments. Gall bladder containing a little dark thin bile. Spleen considerably enlarged and softened, so as to break down when pressed between the fingers. Stomach and bowels externally of a very pale rose tint, the latter contracted and firm. Stomach empty. Its internal surface longitudinally corrugated, and of a pale lilac colour, but white and smooth for about an inch and half around the pylorus. In the upper part of the duodenum was found a small quantity of an orange coloured frothy fluid, which towards the lower portion of this intestine assumed the appearance of thick congee, of a milky whitish colour. Mucous membrane of the duodenum generally pale coloured, but presenting in some parts irregular elevated dusky red granular patches, giving these portions of the bowel somewhat of a fleshy appearance. The mucous surface of the jejunum and ileum presenting the same appearance as that of the duodenum, except that the elevated patches were less marked. Jejunum empty, ileum containing a little orange coloured frothy fluid. Some dark feculence in the colon, the inner surface of which was of pale greyish colour, with longitudinal corrugations less numerous and prominent than those of the stomach.

Remarks. — Here we have 1st, The stomach longitudinally corrugated,. and of a pale lilac colour. 2dly. The inner surface of the small intestines uncorrugated, and of a greyish white colour, with irregular, dusky red patches, very sensibly elevated above the surrounding surface, and giving a fleshy appearance to the portions of intestines thus affected. These patches were more numerous and better marked in the duodenum than in the jejunum and ileum. 3d. The mucous surface of the colon of a pale greyish colour, and pre-

senting longitudinal corrugations, which were smaller and more apart from each other than those of the stomach.

From Experiments i, ii, and iii, we may infer that the natural and healthy colour of the gastro-intestinal mucous membrane is greyish-white, with occasionally a faint lilac tinge on the gastric mucous surface. The corrugations of the stomach are numerous and disposed longitudinally: those of the colon and rectum are also longitudinal, but fewer in number, shapes, and less prominent. The inner surface of the duodenum (and more rarely, and in a much less marked degree of the jejunum and ileum) occasionally presents irregular dusky red, elevated patches or streaks, giving it a rugous appearance, the intervening portions being of the usual colour and consistence.

IX. — On the 24th January, at 11 A. M. gave a healthy dog 3iii. of calomel in soaked bread. Was sick about an hour after, and vomited what appeared to be a portion or the whole of the calomel. In the course of the evening had two or three loose dark evacuations intermixed with slime, and in one dejection there was a little bloody mucus. A little broth given. On the 25th, at the same hour, a similar dose of calomel was given in the same way. He vomited about a quarter of an hour after, a thin fluid apparently containing some of the calomel. In the course of the day had three or four dejections of the same colour and appearance, as on the preceding day. On the 26th at 1 P. M. the dog was killed by drowning, and inspected immediately after.

Liver and spleen of the usual colour, consistence, and size. Gall bladder very much distended with dark bile, and the ductus choledochus quite permeable, — stomach and bowels externally of a pale pink colour. Stomach contained a considerable quantity of frothy orange-coloured fluid: its inner surface corrugated longitudinally. The mucous membrane of the central portion of the stomach presented a bright injected appearance, more particularly on the convex surface of the corrugations, a few of which looked as if blood had been effused on them: — the rest of the surface had a rose tint. The upper portion of the duodenum contained an orange coloured frothy fluid — in the middle portion was found a considerable quantity of a muddy serous-like fluid (containing some coagulated flakes) which flowed readily from the intestine — and the lower portion was coated with a sanguineous or sanious looking matter, which could be readily wiped off by the handle of the scalpel, leaving the mucous membrane underneath entire and of a pale colour. The inner surface of the whole of the duodenum presented here and there the dusky elevated patches so frequently described. Jejunum empty and pale. The ileum lined with a fluid, which assumed successively a sanguineous, sanious, and grumous appearance. The colon longitudinally corrugated — the corrugations sharpened, and slightly injected on their convex surface.

Remarks. — The following points are deserving of notice in this experiment. 1st. The large quantity of bile in the gall bladder, and of bilious-looking fluid in the stomach, and upper part of duodenum.

2d. The injected appearance of the inner surface of the central portion of the stomach, (as in Experiments ii, iv, v, and vi,) more particularly on the convex surface of the corrugations, a few of which looked as if blood had been effused from them. 3d. The contents of the small intestines. These presented successively the appearance of a muddy serous-like fluid, which flowed readily from the bowel — of pure blood — of a sanious looking matter — and of dark grumous blood. In short they resembled the contents of an unhealthy abscess. Similar appearances were observed in Experiments ii, and iv, but by no means so strongly marked. In fact, the contents of the small intestines, in the present experiment, exactly resembled the alvine dejections observed in the worst forms of dysentery. To what are we to attribute them? They were evidently of recent origin, for they had not found their way into the colon: and must, therefore have been the stimulant effect of the calomel on the secretory vessels of the intestinal mucous membrane. 4th. The corrugations of the colon injected in a less degree than those of the stomach.

X. — On the forenoon of the 1st February, 1839, gave a healthy dog (that had been confined from the preceding evening without food) fifteen grains of pilulæ Hydrargyri, and repeated the same quantity on the 2d and 3d. He was fed with boiled rice on the evening of the 1st and 2d, and had several dark coloured dejections. Was killed by drowning on the forenoon of the 4th and examined immediately after.

Liver and spleen of the usual colour and appearance. Gall bladder distended with dark bile. Injection of the capillaries of the omentum and mesentery, and of the external surface of the stomach and intestines. The latter firm and contracted. The internal surface of the stomach (which contained a little soup) longitudinally corrugated, and of a pale lilac colour assuming a pinkish hue on washing and exposure to the air. Duodenum containing an orange coloured slightly frothy gelatinous fluid, with a small piece of bone in its upper extremity. Its internal surface presented a uniform fleshy granular-like appearance, exactly resembling a raw excoriated surface. Over the lower two-thirds of the intestines were scattered six or eight circular patches, having at first sight the appearance of ulcers that had healed. They were all of precisely the same shape and extent being exactly circular, and nearly the size of a sixpence, with raised and well defined borders, giving them the appearance of rings. Their inner area, when minutely examined, was found to be on the same level with the surrounding membrane (the apparent depression arising from the elevation of their margin) and presented the same fleshy appearance which characterized the rest of the membrane, without any of the puckering which is usually observed in a cicatrized ulcer. In the jejunum and ileum there were irregular fleshy patches, the rest of the mucous surface being pale and smooth. Colon contained a little dark soft feculence. Its inner surface was irregularly and closely corrugated, and of a uniform bright red colour. Urinary bladder much distended, and the capillaries of its mucous membrane minutely injected.

Remarks. — We observe here, for the first time, capilliform injection of the omentum, mesentery, and external surface of stomach and intestines. 2d. A healthy appearance of the mucous lining of the stomach. 3d. The uniform fleshy granular, raw appearance of the inner surface of the duodenum chequered with circular patches, resembling rings. No sanguinolent exudation. Irregular fleshy patches in the jejunum and ileum. 3d. Colon of uniformly bright red colour. 4th. We observe, for the first time, the mucous membrane of the bladder minutely injected.

Altogether the appearances in this dog appear to be a less degree of the morbid appearances observed in those which had taken calomel, with the remarkable exemption of the inner surface of the stomach, and with the addition of increased vascularity of the omentum mesentery, external surface of the stomach and intestines, and mucous membrane of the bladder.

XI. — On the forenoon of the 1st February, 1839, gave a healthy dog (that had been confined during the preceding night without food) 3ss. of calomel in pill. Vomited about half an hour after, and rejected part, at least, of the calomel. In the evening gave him rice and soup. On the 2d and 3d the same dose was repeated, and followed each time by vomiting half an hour after swallowing it. On the 2d had several greenish dejections, and three or four black motions on the 3d. On the forenoon of the 4th was killed by drowning, and examined immediately after.

Liver and spleen of the usual appearance. Gall bladder distended with bile of more than usually dark colour. Considerable injection, particularly of the large vessels of the omentum and mesentery. Intestines contracted, and pale externally. Peritoneal coat of stomach very slightly injected. Stomach containing a couple of spoonfuls of a dark frothy fluid: its inner surface corrugated longitudinally, and of a deep red colour, particularly on the projecting border of the corrugations ,which appeared as if dipt in blood. Duodenum contained some orange coloured fluid. Its lining membrane presenting streaks and irregular patches of a deep-red colour, apparently caused, in part, by a sanguiform secretion, which could be scraped off readily with a sponge or the handle of the scalpel, leaving the intestinal tunics pale, and thin, but entire. Jejunum and ileum very much contracted, their inner surface pale coloured generally, but presenting several small patches smeared with a dark grumous effusion, with lividity of the corresponding portions of the peritoneal membrane. Inner surface of colon longitudinally and thinly corrugated, of deep-red colour, with a smearing of effused blood on the projecting borders of the corrugations.

Remarks. — We notice the large quantity of bile in the Gall bladder, and the presence of a bilious fluid in the stomach and upper part of duodenum, as in Experiments ii, iii, iv, vi, and ix. 2d. Ramiform injection of the omentum and mesentery. 3d. Deep-red co-

lour of the gastric mucous membrane, particularly on the projecting border of its longitudinal corrugations, which appeared as if dipt in blood as in Experiments ii, iv, v, vi, and ix. 4th. Streaks and irregular deep-red patches, with sanguiform exudation in duodenum, as in Experiments ii, and iv, and in a more marked degree in Experiment ix. 5th. Small patches of the mucous membrane of the jejunum and ileum, smeared with a dark grumous effusion, with lividity of the corresponding portions of the peritoneal membrane. 6th. Appearance of colic mucous membrane resembling that of the stomach.

XII. — On the 30th January, 1840, at 9 A. M. gave a healthy dog five grains of calomel in pill, which was repeated at 5 P. M. Vomited an hour after the first dose. On the 31st gave a third and fourth dose at the same hours as on the day before. Vomited an hour after the forenoon dose, and was purged during the day and night : evacuations dark coloured. On the forenoon of the 1st February, was shot through the head, and examined immediately after.

Liver of a deep mahogany colour, and not bleeding on incision. Gall bladder filled with very dark green liquid bile. Biliary ducts pervious. Spleen of the usual appearance. Stomach and bowels externally of a pale pinkish colour, the latter firm and contracted. Large veins of mesentery much injected. Stomach containing about half an ounce of orange coloured frothy fluid. Its inner surface longitudinally and densely corrugated : the capillaries of the projecting convex border of the corrugations minutely injected, the remaining portion of the mucous membrane being of a pale lilac colour. The pyloric extremity less corrugated, and of a pale whitish colour. The muscular coat of the stomach firmer and more contracted than in any of the former experiments (did this arise from the sudden mode of death ?) Duodenum containing a viscid dark orange coloured frothy fluid. Its mucous membrane presenting, here and there, dusky-red streaks of what appeared a sanguinolent extravasation, removable by the scalpel, leaving the subjacent membrane of a white colour. Jejunum empty, without a trace or tinge of bile : its mucous membrane of a pale greyish colour, with here and there small capilliform streaks. Upper part of ileum containing a small quantity of dark-greenish coloured frothy fluid : its surface of a pale greyish pink colour. Lower portion of ileum empty, of a greyish colour, with here and there small injected streaks, and in some parts of a slight sanguineous exudation. Cæcum containing a little dry feculence : its mucous membrane of a natural appearance. Colon containing a little dark feculent matter. Inner surface of colon and rectum longitudinally corrugated, and minutely injected. Bladder empty and contracted ; and its inner membrane of natural appearance.

Remarks. — We observe 1st Capillary injection of the projecting borders of the corrugations of the stomach, the remainder of the gastric mucous membrane healthy. 2d. Small portions of sanguinolent extravasation in duodenum and ileum, the intervening portions healthy. 3d. Capillary injection of the colic mucous membrane.

The appearances altogether in this experiment are more analogous

to those of Experiment x, (particularly in the stomach and large intestines) than of any other.

XIII — On the 30th January, 1840, at 9 A. M. gave a healthy looking dog a pill containing five grains of calomel, which was repeated at 5 P. M. Was purged two hours after the second dose — dejection dark coloured. On the 31st gave a third and fourth dose at the same hours as on the previous day. Vomited an hour after the last dose. On the forenoon of the 1st February the dog was shot through the head, and examined immediately after.

Liver of a lightish mahogany colour, giving out liquid blood when incised. Gall bladder filled with a liquid dark green bile : the three biliary ducts quite pervious. Spleen of the same appearance as in former experiment. Stomach and bowels externally greyish white, with a slight pinkish hue : the latter firm and contracted. Stomach containing a small quantity of a pale drab-coloured, viscid, muciform fluid. Corrugations longitudinal, but less numerous and prominent than in Experiment vii. Mucous membrane presenting a pale grey blanched appearance. Inner surface of duodenum of a pale grey colour : its upper portion containing a little of the same fluid as observed in the stomach, with a very slight admixture of bile ; the lower portion containing a small quantity of ash-coloured viscid fluid, like inspissated mucus. Jejunum containing a small quantity of a similar but more consistent fluid : its mucous membrane pale and uninjected. Inner surface of ileum generally pale, with numerous small detached patches of extravasated blood ; its lower portion of a palish white colour throughout. Cæcum, colon, and rectum containing a fluid similar in appearance to that observed in the duodenum. Mucous surface pale, and longitudinally corrugated. Bladder containing two ounces of urine : its mucous membrane of the usual appearance.

Remarks. — The appearances in this experiment are somewhat peculiar. 1st. The appearance of a pale-drab coloured, viscid muciform fluid in the stomach, and under a slightly modified form, in the upper portion of the small bowels, and in the large intestines. 2d. The gastric and intestinal mucous membrane of a pale grey colour throughout, with numerous, small detached patches of extravasated blood in the upper portion of the ileum.

XIV. — On the 21st February, 1840, a pill containing ten grains of calomel was given to a healthy dog at 10 A. M. and repeated at 5 P. M. The dog was purged in the night. On the 22d the above doses were repeated at the same hours, without any effect on the bowels. On the 23d at 10 A. M. the dog was shot through the head, and examined immediately after.

Liver of dark mahogany colour, and emitting a small quantity of blood on incision. Gall bladder containing dark liquid bile. Biliary ducts pervious. Spleen of natural appearance. Stomach and bowels externally of a greyish white colour, with here and there a faint red tinge. Large mesenteric trunks injected. Stomach containing some half digested rice. Its inner surface longitudinally and densely corrugated, and of a pale lilac colour. Duodenum containing a very little orange coloured frothy fluid : its mucous surface of a

greyish white colour. Jejunum presenting the same appearance, with here and there a little sanguineous extravasation on its inner surface. Ileum containing some thin half digested feculence: its mucous membrane of a faint rose tint. A little thin feculence in the cæcum: its mucous surface of a greyish white colour. Colon longitudinally corrugated: the upper portion of its mucous membrane presented a large patch of a dotted bright red appearance; the lower portion of a greyish white colour. Rectum containing thin grey feculence: its inner surface greyish white. Kidneys of natural appearance. Bladder contracted and empty: its mucous membrane of a faint rose tinge.

Remarks.— We observe the gastro-intestinal mucous membrane of a healthy appearance, with the exception of, 1st, A little sanguineous extravasation in a few places in the jejunum. 2d, A large dotted, bright red patch in the upper portion of the colon, and 3d, The mucous membrane of the bladder of a faint rose tinge.

XV. —On the 24th February 1840, at 5 P. M. a pill containing 3i. of calomel was given to a healthy dog. It vomited, and was several times purged during the night; the evacuations of a greyish colour. The same dose was repeated at 9 A. M. and again at 5 P. M. on the 25th. Vomited several times during the day and night, of the 25th but was not purged. On the morning of the 26th appeared very heavy, and refused food. At 1 P. M. on the 26th was shot through the head and examined immediately after.

Liver of a mahogany colour, of softer consistence than usual, and bleeding freely on incision. Gall bladder filled with dark liquid bile: biliary ducts pervious. Increased vascularity, both of the capillary and the large vessels of the omentum. Minute ramiform injection of the peritoneal coat of the stomach. Bowels externally of a reddish white colour, firm and contracted. Mesenteric trunks injected. Stomach containing about an ounce of an orange coloured frothy fluid: its internal surface longitudinally corrugated, and of a uniform bright red tint, with a few bleeding points on the projecting borders of the corrugations; its pyloric extremity smoother and less injected A small quantity of orange coloured frothy fluid in the portion of duodenum between the pylorus and the opening of the ductus communis choledochus; and the mucous membrane of the above portion was injected in streaks, and presented several bleeding points. The remainder of the duodenum and the whole of the jejunum coated with a very viscid congee-like mucus (without any biliary tinge) beneath which the mucous membrane presented irregular, elevated, dusky red patches, with here and there small patches of extravasated florid blood. Ileum containing for about six inches of its length, a quantity of muco-sanguineous fluid, with capillary injection of a great portion of its mucous membrane. Cæcum containing a muco-serous fluid, and minutely and vividly injected. Colon densely corrugated; the corrugations being longitudinal in the upper portion, and transverse in the lower portion and rectum. The whole of its inner surface of a uniform and intensely red colour. A little muco-serous fluid in the rectum. Kidneys emitting an unusually large quantity of blood on incision.

but not diseased in structure. Bladder empty and contracted : uniform bright capillary injection of its mucous membrane.

Remarks. — 1st, In this experiment the capillary injection of the mucous surface of the colon was more intense than that of the stomach. 2d, There was no appearance of bile below the opening of the ductus communis choledochus. 3d, There was increased vascularity of the omentum, the peritoneal coat of the stomach, the substance of liver and of the kidney, and the mucous membrane of the bladder. 4th A muco-sanguineous fluid in the ileum, and a muco-serous fluid in the cæcum and rectum.

Article II.

Report on the Diseases which have occurred in the H. C.'s Steam Flotilla on the rivers of Mesopotamia, from the 1st January, to the 31st December, 1839, with a short sketch of the Climate and Topography. By John C. Floyd, Esq. Surgeon in charge.

Presented by the Medical Board, April, 1841.

Before entering on the above report, I have thought it right to preface it with a short sketch of the topography and climate of the country; for, the latter are so intimately connected with the production of disease, that without a knowledge of them, it would be as difficult to understand the various diseases, extending over such a tract of country, as it would be to localize any particular one.

The country, to which this report refers, extends from 30° to 34° North latitude, and from 40° to 45° East longitude. It includes all the country between the Persian Gulf and Bagdad on the north, the Lauristan hills on the east, and the desert to the west of the Euphrates; and it has borne successively the names of Shinar, Babylonia, Chaldæa, Mesopotamia, and Irak Arabi. It forms at present the southerly division of Turkish Arabia, and comprises the greater part of the Pachalic of Bagdad.

Its physical aspect is that of an immense plain, composed of a deep stratum of black alluvial soil, watered by the Euphrates and Tigris, and intersected with numerous canals. These two great rivers, rising in the mountains of Armenia, pursue a course of several hundred miles, and then emerge from their rocky channel, about one hundred miles above Bagdad on the Tigris, and fifty above Hilla on the Euphrates. From thence, after a serpentine course of four hundred and fifty miles, during which they often approach within thirty miles of each other, they unite at Korna (said to be one of the ancient "Apameæ" built by Seleucus Nicator, now an Arab village,) forty miles above Bussora forming one of the noblest rivers of the east, which under the name of the Shut-il-Arab, runs one hundred and thirty miles further, and disembogues itself into the Persian Gulf: the current averages two knots in the low and five in the high season.

These rivers in their extensive course through a flat country, are constantly changing their character, breaking down their banks and

forming islands, andt here sharing the same fate every succeeding year. The quantity of debris brought down every year, cannot be calculated with certainty, as it must vary with the rise and fall of the stream; but, that it is immensely great, there can be no doubt, from the rapid formation of islands and banks, and also from the immense alluvial banks, which are gradually extending themselves into the Persian Gulf.

Surrounding Country. — This is exceedingly bare, vegetation scanty, except on the banks of the rivers, where the pastoral Arabs feed their flocks, and in some places have settled down to cultivate the soil.

The soil from Bagdad to the Persian Gulf, is entirely alluvial, and of a depth varying from twenty to thirty feet, we then come to a blue and white clay of a very adhesive nature, which contains a quantity of silica and alumina. This is manufactured into vases and water vessels, and from its porosity, allowing of slight evaporation from the surface, the water contained in them is always deliciously cool.

No rocks any where show themselves, but from the character of the hills to the north of Bagdad and Hilla, their dip and strike into the Mesopotamia plain, I have reason to believe that they consist of a micaceous slate, gypsum, and calcareous sand-stone, the second of these abounding. Muriate of soda is an extensive product of this desert, and particularly near Bussora, where it is observed in the form of beautiful crystals, at the edge of every little pond, and it is exported in large quantities from the place. The immense ruins, composed of sun and kiln burnt bricks, which are scattered over this country, attest the greatness of its former population; the earth of these ruins, as that of Seleucia below Bagdad, when washed and evaporated, yields a considerable quantity of saltpetre.

Canals. — The number and extent of these extraordinary works, which once rendered this country so productive, we cannot do more than glance at. We are told that, "in consequence of the periodical rise of the Euphrates, artificial canals were dug by the ancient inhabitants, for the double purpose of protecting the contiguous plains from inundation, and at the same time of preserving the superfluous waters for the irrigation of the soil;"—that it had this effect, the present sterility of the upper portion of this country, and the inundation of the lower, fully demonstrate. Between Bagdad and Babylon, a distance of forty-five miles south, we meet with four very celebrated

canals, one of these, called the Nahar Malacha, or Royal canal, which Julian sailed his fleet through. The magnitude of this may be judged from the fact of the Hon'ble Company's Steamer Euphrates having sailed through one called the Succaloweia, which runs from river to river, but it is now shut up to prevent any further inundation. Another canal, called the Naharawan, runs on the east side of Bagdad, for a distance of three hundred miles; its bed is nearly dry. Midway between Bagdad and Bussora, at Kool-il-Amarah is a canal called the Hye, which runs to the Euphrates, for a distance of ninety miles; it is navigable. The only other canal which I shall mention is the famous Palla Copus, navigated by Alexander the Great, and supposed to be the ancient bed of the Euphrates. It commences below Hilla, and a branch of it was repaired for a short distance by the Nabob of Oudi as far as Mesid Ali, a place of pilgrimage. This canal being stopped up, the Euphrates has overflowed its banks, and formed an extensive, and deep lake, in the western desert.

Vegetation. — As might be expected is abundant on the banks, particularly in the vicinity of Bussora, Korna, Bagdad, and Hilla, where forests of splendid date trees, confer on the inhabitants immense wealth; along with these the glycyrrhiza, the tamarisk, and the arunda abound, and in some places the two latter form immense jungles, in which the lion and the leopard are occasionally seen. The gardens at Bussora and Bagdad, produce almost all the varieties of fruit, peculiar to a temperate climate, and even some of the tropical plants flourish here, as the mango, the plantain, and henna: all the European culinary vegetables are likewise yielded in abundance. As rain does not fall in sufficient quantities for agricultural purposes, all irrigation is artificial, and carried on by means of water wheels, worked by bullocks. The different sorts of corn, sesamum orientale, (an oil plant) are cultivated in great abundance, also, cotton, opium, indigo, rice and tobacco.

The delta enclosed between the Euphrates and Tigris, has, not unaptly, been compared to that of Egypt; for in the time of Herodotus, the ground yielded three hundred and sixty times more than it received, and whatever may be the approach to truth, when oriental historians fix upon it as the site of the "Garden of Eden," certain it is, that its capabilities are as evident as ever, though the caperbush, the colocynth (of the Pharmacopeia) some species of mimosa, the camel-thorn, the salix Babylonica, and a few saliferous plants, are all that now relieve the eye, in a country which once yielded produce equal to a third part of Asia.

The Inundations. — The banks of these rivers are exceedingly low, and thereby easily overflowed, at the time of the annual rise, these take place in the spring and summer months, from the melting of the snow in the mountains of Armenia, they form an important feature in the medical topography of this country, as they completely change the nature of the climate where they prevail. The rivers often fall and rise during the winter months, but the grand rise takes place in the Tigris in April, and in the Euphrates in May, when the former rises about eighteen feet and the latter fourteen feet, and the current which before was only one and a half, is increased to five knots. Notwithstanding this the rivers keep their height, the banks then give way and a more or less extensive inundation covers the country, depopulating villages and laying waste the gardens and fields; such at least was the case at Bagdad in 1839, when from the above cause half the town was under water, but such are temporary and soon retire, as the rivers again descend in August and September.

From Bagdad and Hilla northwards the country is not so liable to these inundations as the banks are higher. About thirty miles above the junction of the rivers at Korna the desert is always one sheet of water. Carry a line from this point across the Euphrates, and from thence over the desert to Bussora and Tobier, it is one vast marsh for a distance of seventy miles. This inundation took place about eleven years ago, shortly before the last plague. A line of banks was formerly kept up along the Euphrates to keep the water out, but these have been completely swept away, and the Government of the country are neither able nor willing to repair them, which would recover a fine tract of country, secure Bussora from ruin and the inhabitants from disease. Indeed, it is not improbable that the Euphrates will find its way into its ancient channel, which emptied itself near the modern town of Grane in the Persian Gulf.

Climate. — The climate of this country must vary exceedingly, as we descend from the snow clad hills where the rivers have their source; but, of that portion, between the Persian Gulf and Bagdad, included in this report, there is little difference unless where local causes operate. The seasons may be divided into the spring, hot, and cold; the former commences about the end of January and continues until the end of April. The Thermometer ranges from 50° to 70° daily, though sometimes it rises much above this; north and south winds blow alternately for five or six days at a time, and at their change sometimes heavy showers of rain descend and

renew the verdure of the desert: all agricultural operations are now carried on. May is the first of the very hot months, in it the corn ripens and is gathered in, before the end of June, when the thermometer averages 105° daily, and every thing appears scorched from the sun. The heat of July and August is intolerable, the Arabs call it "saum" or the date harvest; the thermometer is 115° in the shade and the inhabitants take shelter in their surdaubs or cellars. Hot winds occasionally prevail; the nights however are cool; the atmosphere free from moisture, except near the marshes; and refreshing sleep in the open air compensates, in some degree, for the enervation produced by the heat of the day. In September the heat gradually declines. The cold weather commences in October when there is a variation of 20° to 25° daily, and from this to the end of January it is not unusual to see every thing frozen on the decks. The prevailing winds are the north-west and south-east, called by the natives the Shumaul and Shirgee, they blow chiefly in the winter and spring. Tornadoes or whirlwinds are not uncommon in the hot weather; they approach giving but little warning, and carrying an immense cloud of dust which involves every thing in obscurity. It was in such an one that His Majesty's Steamer "Tigris" was lost on the Euphrates in 1835.

The following table taken from the register of the thermometer kept in the cabin of the Euphrates, which is rendered very cool by wind sails will elucidate the above.

Table Showing the Maximum, Minimum, and Mean Temperature, as registered from the Thermometer at Bagdad for the year 1849.

	Maximum.	Minimum.	Mean.	Prevailing Winds.
January	64	25	50	N. W. and S. E. with rain.
February. . . .	68	36	57	N. W. and S. E. with little rain.
March	75	36	66	Strong N. W.
April.	83	48	74	Ditto.
May	95	65	77	Towards the end of the month hot winds.
June.	101	72	87	N. W. breezes.
July	105	78	98	Calm clear weather. Thermometer 105° underneath the awnings and 135° in the sun.
August.	108	79	97	Hot winds.
September . . .	100	65	85	N. W. Temperature of river 80°.
October	97	58	67	S. W. with squalls.
November . . .	76	51	63	Rains with Squalls.
December . . .	65	33	45	In the four part of this month N. W. with rain, in the latter frosts.

Besides the general account of the climate and country it is necessary to particularize three principal stations of the steamers.

Bussora is situated upon the Shut-il-Arab, ninety miles from the sea, in Latitude 30° 27′ 30″ north, and Longitude 47° 40′ east. The town has been depopulated by the plague and scarcely numbers at present 15,000 souls : the houses are in ruins and every place exceedingly filthy. The canals which intersected it are never cleared out, and instead of proving beneficial to the town, are a never failing source of miasmatic fevers from the decomposed animal and vegetable matter which they contain. The banks of the river, above and below Bussora, are low and lined with lofty date trees, between which, a jungle of liquorice, rank grass and reeds, rise and contributes its share in the production of fever after the inundation of the rivers in June, extensive marshes also lie to the west and north of the town. The heat at Bussora, is not so great as at Bagdad ; but the atmosphere is always loaded with moisture which renders it dangerous to sleep in the open air. The inhabitants have a sickly appearance and such is the dread of Bussora, that it is not unusual for natives higher up the river, before going there to transact business, to make their wills lest they should never again return. Intermittent and bilious remittent fevers, prevail from May to October, and during that time the place is exceedingly unhealthy.

Marghill. — Four miles to the north of Bussora, is a village called Marghill, at this place there is a very large quadrangular building belonging to the Resident at Bagdad, which has hitherto been occupied as a depot, on account of its contiguity to the river, while the steamers were erecting, and furnishing stores for depots and any wards for an hospital in case of sickness. What has already been said of Bussora applies with equal force to this place, except that there is not the filth of the town.

The Hon'ble Company's Steamers and vessels ought not to lie here in the hot months longer than can be avoided. An Arab town called Mohumrah, situated at the mouth of the Kowran, thirty miles below Bussora, is a much healthier place, and from this to forty miles above Korna, either river, can be steamed in one day, by which the marshy country is passed and the upper parts of the rivers are then comparatively healthy. The distance from Bussora to Bagdad is two hundred and fifty miles by land, and and four hundred and fifty by water : the steamers take six days in going up (steaming only during the day) and three days returning.

Hilla. — Adjoining the most remarkable scene of desolation which the eye can picture, in the extensive ruins of ancient Babylon, is the modern town of Hilla, built on both sides of the Euphrates. It contains 7,000 inhabitants, has good caravanseras, and carries on an extensive trade with Bussora and the districts higher up the river. The town is clean and is generally healthy ; sometimes intermittent fevers prevail in spring and September owing to the great marsh to the south.

Bagdad — situated on the Tigris in Latitude 35° 15′ 40″ north, Longitude 44° 24′ 45″ east, though it retains little of its former splendour, it is still an immense place. The town is built upon the alluvial soil, and is somewhat lower than the river, which in summer percolates the ground and fills the surdaubs with water. The bazars are extensive and abound with most of the ordinary necessaries of Europeans. The inhabitants number 100,000, a fifth of whom are Jews and Christians. The town is generally free from disease, unless when visited by the plague, which they say happens every sixty years on a large scale, and a minor one every thirty. Though the extremes of heat and cold are felt here, the climate is perfectly healthy. To avoid the great heat the inhabitants live in surdaubs or cellars, where the thermometer stands as low as 78° while at the same time in the shade it will be 115°; and the nights are so dry and cool that they sleep on their terraces with perfect impunity.

Population. — The population consists of two classes, the Arabs of the desert, and the inhabitants of the towns. The desert Arabs in this part of Arabia, have given up in a great part their predatory occupation, for the more certain one of agriculture. One large tribe called the Montifidge is extensively engaged in the commerce of the rivers ; their mode of life is excessively simple. They have not the vigor or stature of the Arabs to the north, and do not live to a good old age, owing I think to their living chiefly near the marshes and being worn out with fever ; their clothing consists of a black or white camlet cloak ; a long coarse shirt and a chaffen with a small turban for a head dress. They live in black tents made of horse hair or reed huts. Another class of Arabs are employed in tracking boats up the rivers, they are oftener in the water than out of it, and it is extraordinary how they bear the intense heat of the sun without any covering but a small cumberbund. To protect themselves from the swarms of musquittoes by night, they roll their bodies in the

mud and in the morning wash it off, they are not proof against the climate and they sink suddenly when attacked by fever.

The inhabitants of the towns, as I have already said, are composed of Arabs, Turks, Chaldeans, Armenian Christians, and Jews. The two latter are the same enterprizing and parsimonious people here as in all other parts of the east, and engross the chief part of the commerce. Large towns have been seldom found to be good nurseries for morals, and accordingly we find that the Turks, as well as Christians, have added the pleasure of the cup to the pipe, and the Government have sanctioned the establishment of drinking houses, where a deleterious drink, made from aniseed, dates, sugar, and hushash, ("*The Cannabis Sativa*") is sold; and it is not uncommon to see the Turkish Nizam rolling drunk in the streets.

It is well known that the Turks were formerly great opium eaters, it is now rare to find one in Bagdad, but it is worthy of statistical record, that the use of this pernicious drug has been merely laid aside for that of intoxicating liquors, which have increased so much of late, that the Koran has become a dead letter in the land of the Prophet. Pork is sold openly in the bazars, and debaucheries, heretofore unheard of, are publicly permitted.

Chaldean Christians. — These people merit a distinct notice. They are called Chaldeans, Mestorians, and Mooslies, because they come from the hills in the neighbourhood of Mosul on the Tigris; they are of middle stature, athletic, and not wanting in courage. They are honest, and hard workers, and are chiefly employed in Bagdad and Mosul as domestics.

They have been, not unaptly, compared to the Irish peasant, as they resemble him in dress and are exceedingly pugnacious. It is from these people that the native portion of our crews is taken; being Christians they agree very well with the Europeans, they work willingly and are capable of enduring great fatigue.

Prevailing Diseases. — The diseases which prevail in this country, and from which the natives without any distinction suffer, are intermittent and remittent fevers, dysentery, scrophula, ophthalmia, and rheumatism. The natives have the fever in its intermittent form; they are easily cured by bark or quinine, but as neither advice nor medicine are procurable in this country, they often drag out a miserable existence and death ensues in consequence of some visceral disease.

There are few of the natives but suffer from gastric and intestinal irritation which shows itself in the spring and October, in the form of mild dysentery. A variety of causes combine to produce this effect on the system of natives, among these may be noticed the frequent great diurnal range of temperature, their long religious fasts, and their excessive use of melons, cucumbers, and the like; to which, I think, may be added the continual sipping of hot coffee.

Scrofula is met with under the form of diseased joints and phthisis.

Diseases of the eye are so common, both in the towns and desert, that it is rare to meet a person without some abnormal affection of those organs: cateract is very prevalent in those men who have passed their climacteric.

Diseases of the skin are not of frequent occurrence, if we except the date boil. This I attribute to the natives in the town frequenting the humaums; and the Arabs often laving themselves in the river.

The epidemic diseases which prevail here, are, variola, rubeola, and influenza; the former is not very fatal owing to vaccination being universally practised. It is, I believe, to Mrs. Rich, the lady of the late Bagdad Resident, that this great blessing is due.

A case of idiopathic tetanus from cold occurred to one of our post men; with the true Mussulman resignation, he refused to try any remedies and submitted to his fate.

There is only one species of venomous serpent known here, and fortunately it is very rare. On the contrary, large black scorpions swarm here in summer, and their sting is said to prove fatal to young people, for this the bezoar stone is in great repute with the natives. The greatest nuisance in the town and villages of Mesopotamia is the great number of filthy and diseased dogs, without masters, but suffered to exist for the purpose of consuming the refuse in the streets; strange to say, that amongst them hydrophobia, not only never occurs, but is not even known by the inhabitants.

The natives invariably have themselves bled once a month, when a small tea-cupful is generally taken away, and in the absence of aperient medicines, it may be serviceable in lessening the disposition to inflammatory disease, and perhaps affording one reason why they seldom have fever in its remittent form.

A few ignorant French medical adventurers in the service of the Pacha, with the native practitioners, represent medical science in this country. The latter class I am told are much the same here as all other oriental Hakeems, and have little discrimination in applying their remedies. A great number of oriental drugs are found in the Bagdad bazars, many of which are indigenous to this place.

Health of the Europeans. — From what has already been stated respecting this climate, where the extremes of heat and cold are apparent and the heat exceeding that of India, it may be thought any thing but salutary for Europeans. The annexed register of the diseases which have occurred for the year ending 30th December, 1840, certainly shows a fearful amount of disease among such a small body of men; but it is to be remembered that almost all the diseases included in the returns, have had their origin in Bussora or its locality, from causes which I shall presently mention, and that above this place, the climate, though hot, is perfectly healthy as is proved by the crew of the Euphrates having been for the last three years employed in the upper part of the rivers, and during that time enjoying better health than in the most favoured European climate.

We cannot exactly tell the effect of Bussora climate upon sound constitutions; for the seamen and artillery men who compose our crews, were either notorious drunkards or else worn out by a long residence in a tropical climate; and then again, the difficulty of treating men in a small vessel, where the radiated heat is great, the washing of decks, the excessive noise, and the impossibility of regulating their diet, all tend to disturb the patient and render a satisfactory termination less probable.

From January, 1840, until the end of March, the native and European crews of the Euphrates, were employed at Marghill in assisting at the building of three other iron steamers. The sick admissions amounted, to fifty-seven, of these six were cases of diarrhœa, one hepatitis from drinking, and the rest chiefly relapses from intermittent fever, which they had caught here, in the November previous, while digging docks for the steamers.

In April I went up to Bagdad in the Nimrod on duty, and leaving the three other steamers to wait for the crews which were expected soon to arrive from Bombay. The Euphrates arrived at Bagdad on the 2d of June with two men ill from remittent fever, who died two days afterwards. The crews in the mean time arrived from Bombay but not sufficiently strong to work the vessels; towards the end of June every man was laid up with fever, and before we could arrive at Bussora to render assistance, two Engineers had died, and many of the others were in a precarious state. It was however imperative to bring the vessels up the rivers for a change of air; the convalescents, as well as the strong, were obliged to work during the greater part of the day, the thermometer standing at 112° under the awnings, and after eight days the vessels arrived at Bagdad. Officers as well as men, being much exhausted, and the sick getting worse, a large well

ventilated house on the river, was immediately procured and converted into a temporary hospital, to which the sick were removed; towards the end of August, the sick began to be convalescent, and it was deemed advisable to remove the steamers to Gararah, four miles south of Bagdad, where they might exercise themselves in the shade of the date gardens.

During the time the men were in hospital, the thermometer averaged 105° in the shade. Four deaths occurred from remittent fever, which with the four mentioned above, make eight from fever, besides one death from hepatic abscess, one from dysentery, one from phthisis pulmonalis, and one from disease of the heart. Eight have been sent to the Presidency for a change of air, and four others must be sent this month for the same purpose.

The foregoing is a brief account of the causes which have led to such fatal results and crippled this Flotilla for the rest of the year, all of which might in a great measure have been obviated had the crews been stronger and more equal to the vessels; and we cannot but sympathise with the European soldiers and seamen, who have to suffer under such circumstances.

We shall now make a few remarks on the above diseases as they occurred.

Remittent Fevers. — This fever prevails at Bussora from June until September, when it changes its character and becomes intermittent. It is chiefly of a bilious nature and is always complicated with affection of the brain and abdominal viscera; and continues from one to three weeks if not arrested by medical treatment. The patient usually complains of a dull pain in the head and a sense of lassitude for some days previous to the fever, which is afterwards ushered in with chills, and the patient though really hot, complains of cold. This however is of short duration; the headache increases, the pain being chiefly referred to the temples and eye brows; the eyes suffused; the skin becomes burning hot; epigastrium painful; stomach irritable with vomiting of bilious matter; tongue loaded, dry, and coated with brown at its back part; bowels usually costive, sometimes slight purging; urine scanty and scalding; thirst urgent; pulse varies from 105° to 120° full and strong. If the disease be not subdued in time by medicine, this state of things continues for six or seven days, then there is great anxiety, the countenance has a vacant appearance; the motions become black, fœtid and frequent; the patient lies chiefly on his back; there is considerable nervous agitation, dark brown

tongue, the stools are passed involuntarily, and the patient dies in a fit of delirium or comatose.

Sometimes however the Bussora fever occurring in weakly constitutions is protracted for weeks, petechiæ occur and sordes covers the teeth, and then death takes place from exhaustion and inanition, as in some cases of typhus. Seventy-four cases of the above fever are included in the return; but if we make allowance for the re-admissions, fifty will be a nearer approximation to the truth.

The treatment adopted consisted of bleeding freely from the arm in the commencement of the disease. This was always followed by instantaneous relief to the head and epigastrium, while at the same time it prepared the way for the introduction of mercury; and an emetic cathartic mixture was then exhibited, unless whenever the irritability of the stomach forbad it. The rest of the treatment consisted in relieving local pain by means of cupping and leeches, and the introduction of mercury combined with antimony, saline draughts, &c. enemata were of great use in relieving the tension of the abdomen, and the motions changing their dark colour for a more natural one, is the first favourable symptom.

It is very difficult to affect the system with mercury in this disease; some patients took one hundred and sixty grains without being affected by it, and in all those where it succeeded, a rapid recovery soon took place. The reason of this difficulty is, that the fever is a highly inflammatory one; the remissions are very indistinct, unless in debilitated constitutions, and in these we gave quinine.

The recoveries from the fever are often tedious and it has an evident tendency to disorganize the mucous membrane of the bowels. The pathology of the above fever we think will bear out the treatment which was adopted. Cerebral congestion and patches of inflammation in the chylopoietic viscera were always present, with softening of the liver and mucous membrane of the bowels: the casualty cases of Houston Bynam, and Gunner William Brown, furnished to the Medical Board, will illustrate the above. My observations led me to conclude that as miasmatic fevers proceed from the same source, the poisonous miasm may lie dormant in the system for some weeks before giving rise to fever, and that then it is produced in its remittent form through exposure to atmospherical heat or some debauch.

I shall now mention two or three cases to illustrate the above. Andrew Moir, engineer of the "Nimrod" left Bussora on the 25th of March; he performed his duty up to Bagdad where he arrived on the 2d April; he enjoyed very good health until the 21st, when having got

intoxicated and exposed himself to the sun, which was now very hot, he was seized with rigors followed with high fever, and complicated with inflammation of the liver ; he was bled with relief to his side ; Mercury was freely given. The fever however continued with slight remissions ; delirium, involuntary motions, and petechiæ, supervened ; yet, notwithstanding he recovered after being seventeen days ill.

The next case is that of Engineer Hamilton. He had slight ague at Bussora in June, and left that place on the 2d July, apparently well, he was much worked coming up the river, being exposed to a temperature of 140° in the engine room, and 115° on the deck. On the 11th he arrived at Bagdad, only a little fatigued, as he said, after his nine days work ; on the 14th, he was seized with severe fever and died on the 24th. His case has already been furnished to the Medical Board, so that it is not necessary to make any further remarks here, than, that ptyalism could not be produced.

Acting Master Holland, had remittent fever at Bussora in July, and was brought up in the Steamer Nimrod, in August, for a change of air ; he continued in good health for fourteen days after his arrival at Bagdad, when by some indiscretion in cooling himself when the body was over heated, he was seized with fever complicated with pleuropneumonia, the latter was subdued by bleeding and tartrate of antimony ; but the headache, epigastric tenderness, and dark fetid motions continued until the gums became sore, when he rapidly recovered again.

Acting Master P. one Gunner and Corporal Maltman, left Bussora in the cold weather, all well. Seventeen days after their arrival at Bagdad the Corporal had fever in its intermittent form, while the two others from indulging in some excess, got fever in its remittent form. They were bled, purgatives and diaphoretics administered, and at the end of six days they resumed their duty. Had these latter occurred in the hot weather, the termination might have been different.

Intermittent Fever. — The crews of all the steamers, save the Nimrod, suffered from this fever, having caught it at Bussora in June and October.

I shall not dwell upon the symptoms of a fever which has been so often described and must be so well known in India. It prevailed chiefly in its tertian form, the cold stage is of long duration and the entire paroxysm continues from three to five hours. The debility in consequence of this fever, is very great, and the most athletic person is soon reduced in strength.

Though malaria, the exciting cause of this fever, never ceases to exist here, yet, I am of opinion, that the predisposing causes, such as sleeping on the decks in the humid state of the atmosphere, depressed spirits and intoxication, had more share in bringing on the attack; for, nine cases out of ten, were preceded by some abnormal state of the stomach and bowels.

The treatment consisted in the first place in restoring the secretions by mercurial purgatives; emetics and diaphoretics were exhibited during the hot stage; and afterwards quinine was liberally given as an anti-periodic. Venesection was tried in several cases, but with no apparent benefit; however indispensable it is in the bilious remittent, it would be too expensive a remedy for the constitution to undergo, on every attack of this fever. Quinine, arsenic, and nitrate of silver, have all had their trial; quinine, though a valuable remedy for intermittent fever has signally failed here, though administered in very large doses. This we attribute to Lunar influence and the southerly winds which generally attend the change of the former. The fever from this cause is so regular an occurrence, that it is not uncommon for the men to come for their quinine a day or two before the expected attack. A change of climate by sea has proved itself to be the only effectual remedy for Bussora fever. The sequelæ of these frequent attacks of intermittent fever, are more to be dreaded than the disease itself. Of these in the returns, there is one case of enlarged spleen; this yielded to a course of alteratives and quinine. Two cases of abdominal dropsy; one of them an artillery man had disease of the heart and the swelling always returned: he was sent to the Presidency. The other was owing to enlarged spleen and general debility; it yielded to blue pill, squills and digitalis, followed by tonic: it is now ten months since and the patient continues in good health.

Hepatic Affections. — Of these, fourteen are included in the returns: three however, are re-admissions; of the remainder, six were chronic, and five acute. There was nothing peculiar in any of these cases, they all occurred in men who had served in India and seemed to be owing partly to intemperance and partly to the sudden vicissitudes of the climate which are not favourable for such a class. One casualty occurred from hepatic abscess in Gunner James Ward, he had been ill with the disease in Bombay, five months previous to coming up here, and afterwards suffered from intermittent fever at Bussora: the only thing worthy of remark was the small slow pulse sel-

dom exceeding 58 and the entire absence of constitutional irritation. This case was furnished to the Medical Board.

Dysentery. — Of this disease seven cases are returned and one death. This casualty, though under this head, I am inclined to regard as a case of gastro-enteritic fever after ptyalism was produced, the patient seemed to do well for eleven days, he then relapsed and died six weeks after his coming into hospital. This case, was also furnished to the Medical Board. Of the six other cases one was colonitis which occured to acting Conductor Grady. Venesection, small doses of calomel, and opium, and anodyne enemata, was the successful treatment.

Diarrhœa. — Twenty cases of diarrhœa are returned, the most of these were simple cases of increased intestinal secretion, owing to some error in diet or the water in the neighbourhood of the marshes which is brackish, and full of vegetable matter.

One however was the sequela of remittent fever, continued three months, and was finally cured by sulphate of copper in half grain doses, thrice a day, after all other remedies had failed, two others cases of chronic diarrhœa occurred in two officers, brothers, Lieutenant ———, and Captain ———, of the ——. They had both suffered from disease of the bowels in India, and there is no doubt but that it was connected with tubercular disease of the intestines in both. They were both sent to Europe for a change of climate, and we regret to add that Lieutenant ———, has since died on his way home.

Dracunculus. — One case occurred to an Indian servant, but it is not indigenous to this country.

Thoracic Affections.—Under this head are included nine cases, of which four were bronchitis, two pneumonia; and three cardiac diseases. Of the latter, one has proved fatal, and another has since died at Karrack, both the patients were artillery men, and had suffered from fever at Bussora; one of them recovered and soon after got an attack of bronchitis upon which supervened enlargement of the heart, palpitation, dyspnœa, and œdema of the legs. The pulse at first 115 after using digitalis some time it came down to 65. The patient after being ill two months was sent to the Presidency and died on his way down. The third case is enclosed with this report as a casualty.

While on this head we think it right to notice, that numerous cases, of affection of the heart have occurred amongst our Europeans, while

under treatment for intermittent fever, it does not in the first instance amount actually to disease, but if not attended to, it may prove itself the precursor of further mischief. They usually complain between the periods of the attack of fever, of a soreness in the left side, sometimes amounting to pain and extending into the shoulder and arm of the same side. Pain increased on taking a deep inspiration, decubitus on the affected side, and sometimes in a semi-erect position. The pulse is little altered at the first , there is no fever, and the bowels are generally costive. The patient seldom complains unless he gets worse or unless questioned by the medical attendant The stethoscope does not indicate any change in the organ itself save the strong systolic sound of the ventricles. The whole seems to depend upon an excessive irritability of the muscular parietes produced by the slow circulation of the venous blood, during the frequent cold stages of fever. It generally yields to local bleeding, digitalis and morphia with an occasional laxative.

Phthisis Pulmonalis. — Of this disease two cases occured, one died here, and the other was sent down. Both lungs were found to be a mass of tubercles in different stages of suppuration.

Rheumatism. — Ten cases are returned, but four of them are readmissions and one continues on the list. This disease next to fever is the most difficult to treat owing to the atmospheric changes and southerly winds. The remaining case has resisted every known remedy; sarsaparilla and hydriodat. potassæ given, as anti-mercurial, which appears to have done some good.

Surgical Cases. — It might be expected that the working of such weighty machinery as the engines and boilers of four steamers would have been attended with serious accidents, such however, was not the case, two fractured fingers which were amputated, and a few contusions were all.

Ophthalmia. — One case of iritis and one of conjunctivitis. Six cases of purulent ophthalmia occurred in the families of the artillery and are not included in the report. This disease is endemic in the month of July and August; it is as severe as the Egyptian variety, and requires the most active antiphlogistic treatment with the application of nitras argenti (in its chronic stage.)

Ulcers. — Of these eight cases, one is an old syphilitic sore. The rest are date marks. This curious ulcer which prevails upon these rivers from Aleppo to Bussora, attacks all classes indiscri-

minately, young old, rich, and poor, all suffer alike. The native children generally have it upon their cheeks where it leaves an ugly cicatrix. while the Europeans have it mostly on their hands fore-arms and legs, and generally, within six months after their arrival. Few in the flotilla have escaped it, though it is seldom so bad as to put them on the sick list. This ulcer has been well described by Dr. Russel in his history of Aleppo and is well known in the East as the "*Antash pharse*," *Bouton d'Aleppe*, *Timurmal Bagdad* (or date mark) it is of purely local origin being more virulent at Aleppo less so at Bagdad, and least of all at Bussora. The Arabs on the rivers never get it unless when they reside in the towns; it seldom attacks the same individual the second time but still there are examples.

Of the causes said to produce, it we shall not here add to the numerous hypotheses respecting it. The water has been blamed for it, but it exists in an equal degree where that essential is good or bad. It is unattended with constitutional symptoms and the treatment therefore is perfectly local. It is at first an indolent ulcer somewhat larger than a rupee with pale granulations, it then becomes exceedingly irritable eating into the sub-cutaneous cellular membrane, bleeding granulations then sprout up to the surface, then it becomes covered with a thick scale, which soon falls off and it again goes through the same process without any attempt to cicatrization, this continues for eight or nine months. In some cases it has all the appearance of a syphilitic ulcer. The treatment which we have found most serviceable, consists in poulticing in the first instance with bread or yeast, if it can be had, and afterwards applying the lotion of chloride of soda twice a day, and weak acetate of lead ointment with opium during the interval: the limb at the same time is benefited by the application of a moderately tight bandage; under the above treatment the ulcer will heal in four or six weeks. Water dressing, when it can be applied, as on the arm or hand, with oiled silk is attended with like success. Iodine has been tried without benefit.

Concluding Remarks. — The foregoing remarks have been necessarily curtailed on account of the limits generally assigned to a report, but I believe that the diseases already mentioned may be considered, to prevail always more or less amongst Europeans serving in this country.

From what has already been said respecting Bussora, I have only to repeat that the sea and the river steamers ought not to remain at Bussora during the months of June, and July, August, and Septem-

ber, but that another depot should be established for that purpose nearer the sea. Secondly that in case of sickness occurring higher up the rivers two houses should be kept in readiness at Bussora and Hilla, to which they might be removed to be under the superintendence of a medical officer; and thirdly, as the hospital in Karrack has been made available for the sick of this flotilla, invalids will henceforward be sent there for a change of air, if necessary.

No. I.

Return of the Sick belonging to the Hon'ble Company's Steam Flotilla at Bagdad, from the half year commencing 1*st July, and ending the* 31*st December,* 1840, *Together with Grand Total of Sick for the year ending* 31st *December,* 1840.

Strength Europeans . . . . 96 } 172 Total.
Natives . . . . . 76 }

Disease.	Apoplexy	Asthma.	Cholera Bilious.	" Spasmodic.	Cutaneous diseases.	Cachexia.	Diarrhœa.	Dropsical Affection.	Dysentery.	Dislocations and Sprains	Delirium Tremens.	Dracunculus.	Fractures.	Fever Remittent.	Fever Intermittent.	Gonorrhœa.	Hepatic Affect. Acute	" Chronic.	Inflammation. External.
Remaining 1st July, 1840.	..	..	..	..	..	..	1	..	..	..	..	..	..	2	..	..	..	..	..
July.	..	..	..	..	..	.	4	..	..	..	..	1	..	29	25	..	..	3	..
August	..	..	..	..	..	..	1	..	3	..	..	..	..	4	12	1	..	1	..
September.	..	..	..	..	..	..	1	..	..	..	..	..	..	2	7	..	..	2	..
October	..	..	..	..	.	..	1	1	1	..	..	..	..	1	10	..	..	1	..
November	..	..	..	..	..	..	1	..	..	1	..	..	..	4	7	..	2	..	..
December	..	..	..	..	..	..	1	..	1	..	..	..	1	..	6	..	..	..	..
Total. . .	..	..	..	..	..	..	10	1	5	1	..	1	1	42	67	1	2	7	..
Total included in the half yearly Return ending the 30th June, 1840	..	..	..	..	1	..	10	1	2	1	..	..	1	33	39	1	5	..	7
Grand total for the year 1840	..	..	..	..	1	..	20	2	7	2	..	1	2	75	106	2	7	7	7
Discharged	..	..	..	..	1	..	19	2	6	2	..	1	1	67	106	2	5	7	7
Died.	..	..	..	..	..	..	..	..	1	..	..	..	..	8	..	..	1	..	..
Remaining 1st January, 1841 .	..	..	..	..	..	..	1	..	..	..	..	..	1	..	..	..	1	..	..

No. II.

Return of the Sick belonging to the Hon'ble Company's Steam Flotilla at Bagdad. Continued

Disease.	Cephalic.	Thoracic.	Abdominal.	Affection of the Urinary Organs.	Mania.	Ophthalmic Affections, Acute.	Chronic.	Phthisis Pulmonalis.	Rheumatism.	Spleen Disease.	Syphilitic Affection Primary.	Secondary.	Small Pox.	Scurvy.	Ulcers.	Wounds.	Other diseases.	Total.
Remaining 1st July, 1840 . .	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	4
July.	3	..	1	..	..	1	..	1	..	..	..	..	..	..	1	1	1	71
August	..	..	..	1	..	..	..	1	2	..	..	1	..	..	1	..	1	29
September	1	1	..	..	..	.	..	..	3	..	..	..	..	..	..	..	1	18
October	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	16
November	..	..	..	1	..	..	..	..	..	..	..	..	..	..	2	1	.	19
December	..	..	..	1	..	1	..	..	..	.	..	..	..	..	..	..	..	11
Total.	4	1	1	3	1	2	..	2	6	..	..	1	..	..	4	2	3	168
Total included in the half yearly Return ending the 30th June, 1840.	2	8	..	..	1	..	..	..	4	1	..	..	..	..	4	2	10	133
Grand total for the year 1840.	6	9	1	3	2	2	..	2	10	1	..	1	..	..	8	4	13	301
Discharged	6	8	1	2	2	2	..	1	9	1	..	1	..	..	8	4	13	279
Died	..	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	12
Remaining 1st January 1841.	..	..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	5

Article III.

Reports of the 1st Troop Horse Brigade, stationed at Sholapoor, Poona and on Field Service in Scinde for the years 1838, 1839 *and* 1840. By A. H. Leith Esq.

Presented by the Medical Board, April, 1841.

Report for 1838.*

General Observations. — During the first nine and half months of the past year, the troop was stationed at Sholapoor; it left that cantonment in the middle of October, and marched to Poona where it has been only for two months.

In a review of the practice among Europeans during the year, dysentery is the disease, which combining severity with frequency of occurrence, is most prominent on the list. In February it bore somewhat of an epidemic character, and its prevalence at that time may have been connected, in some measure, with the cause of cholera which then continued to rage in the surrounding country, and again made its appearance among the Europeans of the troop.

Small Pox, was another disease of severity, that also in February visited us, but was confined to two cases. The fever cases I have found to be generally of a tractable nature. Cases of syphilis, which occurred but seldom in the first half of the year, have latterly been very numerous and the cause of a heavy sick list; all available measures have been taken to check the disease without avail.

Drunkenness, which is the cause so prolific of disease among Eu-

**Stationed at Poona.*

	Strength.
Included in the returns.	106
Absent on command beyond the division or on leave.	3
Number of Sick. Total.	109
Remained 31st December 1837	8
Admitted in 1838	335
Discharged	321
Died in hospital.	3
Remaining 31st December 1838	19
Average daily number of sick for the year.	14
Average number of convalescents	0
Died without receiving medical treatment.	1
Changes since 31st December 1837.	
Recruits joined	
Discharged from the service on account of disease	
Discharged from the service on account of other caues	
Invalided.	
Pensioned	2

ropean troops in India, must be particularly referred to here as the cause of a large portion of the cases admitted, not merely indirectly, by giving a proclivity to the ordinary diseases of the country but directly, for most of the wounds, contusions and cases of dyspepsia, and cephalalgia are the immediate results of it. The soldier, both at Sholapoor and here, has great facility in getting ardent spirits in quantities limited only by his means of paying for it.

The following is a Tabular view of the diseases among Europeans treated in the Hospital of the Troop during the last year. It shows both diseases, when a patient was treated for more than one.

Mean Temperature	69.78	75.68	79.85	85.60	89.36	80.62	80.10	78.75	78.58								
Mean Range of Thermometer	25.36	21.37	16.39	20.79	18.90	10.62	14.08	13.97	11.97								
Diseases	January.	February.	March.	April.	May.	June.	July.	August.	September.	October,	November.	December.	Total treated.	Cured.	Died	Sent for change of Climate.	remaining under treatment.
Asthma	..	..	..	..	..	1	..	..	..	..	..	..	1	1	..	..	..
Burn	2	.	..	..	..	..	..	..	..	..	..	..	2	2	..	..	..
Cardiac Affection	.	..	..	1	..	..	..	..	..	..	..	..	1	1	..	..	..
Cephalalgia	..	..	3	2	1	1	2	1	..	..	2	..	12	12	.	..	..
—— " ——Intermittent	1	..	1	..	1	..	..	..	..	..	..	..	3	3	..	..	..
Cholera	..	3	..	..	..	..	.	..	1	..	..	..	4	3	1	..	..
Constipation	..	..	..	..	1	..	..	.	1	..	..	..	2	2	..	..	..
Contusion	3	1	..	3	2	2	.	1	..	2	..	1	15	15	..	..	..
Cutaneous diseases	..	..	..	..	..	..	..	..	..	..	..	2	2	1	..	..	1
Cynanche Tonsillares	..	..	..	2	..	..	..	..	..	..	..	..	2	2	..	.	..
Delirium Tremens	..	..	..	1	1	..	..	..	..	..	..	..	2	2	..	.	..
Diarrhœa	..	..	..	..	2	..	2	..	1	..	..	1	6	5	..	..	1
Dysentery	2	6	..	2	..	2	2	3	.	2	1	1	21	20	.	1	..
Dyspepsia	1	3	..	..	..	2	1	1	1	1	..	..	10	10	..	..	..
Epistaxis	1	..	..	..	..	..	..	..	..	1	..	..	2	2	..	..	..
Fevers	6	3	4	1	5	4	2	6	3	12	10	9	66	63	..	1	2
Fractures	..	..	..	..	..	..	..	..	..	1	..	..	1	..	..	..	1
Gonorrhœa	4	2	2	..	2	1	1	2	1	..	1	4	20	17	..	..	3
Hepatic Affections	..	..	2	2	1	1	..	1	2	.	.	4	13	12	1	..	..
Inflammation External	3	3	2	2	6	1	2	1	1	1	..	3	25	23	..	..	2
—— " ——Cephalic	..	..	"	..	..	..	..	..	..	..	1	..	1	1	..	..	..
—— " ——Thoracic	..	..	1	2	..	..	..	.	1	..	4	1	9	7	..	1	1
—— " ——Abdominal	..	..	..	..	1	..	..	1	..	..	..	..	2	2	..	..	..
Odontalgia	..	..	..	..	..	..	..	..	..	..	1	..	1	1	..	..	..
Ophthalmia	..	..	..	..	1	..	..	1	..	..	..	..	2	2	..	..	..
Rheumatism	..	..	1	..	..	..	1	1	..	2	..	..	5	5	..	..	..
Small Pox	..	2	..	..	..	..	..	..	..	..	..	..	2	1	1	..	..
Spasms of Stomach	..	1	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..
Splenic Affections	3	1	2	1	..	..	1	..	..	2	..	..	10	10	..	..	..
Sprains	1	1	1	2	1	2	.	..	3	..	1	..	12	12	..	..	.
Syphilis	1	1	1	1	2	3	4	16	6	4	11	9	59	53	..	..	6
Urinary Affections	..	..	..	..	1	..	..	..	..	..	..	..	1	1	..	..	..
Ulcers	..	2	2	3	..	2	..	1	2	..	..	1	14	13	..	..	1
Wounds	1	1	2	3	3	6	..	..	..	1	4	3	24	23	..	..	1
Total of each Month	29	30	24	29	31	28	8	36	23	30	36	39					
Total Cases treated during the year													353	328	3	3	19

Average daily number of Sick 14.65
Do. Do. Strength of Troop 103.28
Do. Do. percentage of Sick 14.18

Medical Diseases.

Cephalalgia. — Of the cases under this head, three were of a neuralgic nature; the rest were the consequences of drunkenness.

Intermittent Cephalalgia. — In this disease quinæ disulphas or cinchona was given in exactly the same way as in intermittent fever, and with equal success.

Cholera. — In the instances in which it occurred was attended with severe spasms chiefly affecting the lower extremities. All the patients were of intemperate habits and in each case the attack followed a debauch; one case proved fatal. The treatment in this disease was directed to excite the heart and arteries to the due performance of their functions, so that arterial blood might be prepared and carried through the body. To attain this, powerful stimulants were employed to act on the depressed nervous system, but as preliminary measures, the irritability of the stomach had to be allayed to enable it to retain the medicines, the heart had to be relieved from the oppressed and gorged state which would prevent its contracting on its contents with sufficient vigor, even if brought under the influence of stimulants, and the congestion of the pulmonary circulation had also to be relieved. To accomplish the first of these objects a pill of about two grains of opium was given and with a view to the second and third, blood was taken by venesection to the extent of a pound and a half or two pounds, stimulants were then administered, and ammonia was the one chiefly used on account of depressing effects not following its exhibition even when given in large quantities. It was given in the form of its aromatic spirit or of liquor ammoniæ the first, in doses of ʒiss. to ʒii. and the latter in equivalent quantities and made into a draught with camphor mixture, the dose was repeated half hourly, or hourly and on the mitigation of the disease was diminished in strength and in frequency of repetition. As external adjuvants, sinapisms were applied to the epigastrium, the insides of thighs and the calves of the legs; hot bottles, and dry frictions were also employed.

Delirium Tremens. — Neither of the cases of this disease was severe. The treatment was antiphlogistic with the frequent affusion of cold water in a small stream from a height on the head.

Diarrhœa. — Some of the cases were nearly allied to dysentery.

Dysentery. — One of the men admitted in January had suffered long from this complaint and it was on a chronic state of the disease that the acute attack for which he was now treated supervened; on its again subsiding into a chronic state he was sent for change of air to Poona. The dysentery which prevailed in February and again after the commencement of the rains, was characterized by frequent scanty stools with much tenesmus and tormina. The dejections were slimy or gelatinous and more or less bloody; there was considerable tenderness of abdomen, generally in the iliac regions. The circulation was seldom accelerated, but the pulse was quick in the beat and not readily compressed; thirst was urgent. In treating these cases the chief reliance was on the use of the lancet at the commencement; bleeding from the arm was practised until the pulse became soft and all appearance of blood was gone from the dejections. Each bleeding was performed with the patient sitting, or in the semi-recumbent posture, and the blood was allowed to flow until slight faintness was induced; thus from two to three or even four pounds (and in one instance as much as five pounds) were taken at first and the bleeding was repeated once or oftener if necessary. Then leeches were applied to the abdomen until all pain and tenderness from pressure were removed, and hot fomentations were used frequently in the course of each day; from these the patient experienced great relief from tormina, and they aided materially in the removal of the disease. Purgatives were given daily in these cases, and ipecacuanha in small doses, every two hours, uncombined. This last medicine had not a very marked effect, but did appear to render the motions more feculent; opiate enemata were sometimes used. The cases which were admitted during the hottest weather, differed in character from the above mentioned, the motions were more liquid and copious, and an equally free use of purgatives did harm; bleeding, leeching and fomentations, were employed, and the continued use of the infusions of rhubarb, gentian and ipecacuan, was beneficial. In such cases and in the chronic form of the disease, I have seen ipecacuan in doses of twelve or fifteen grains, combined with three or four grains of opium, given once or twice a day, do much good. These cases were more tedious than those which occurred in the cold weather.

Fevers. — Have been chiefly intermittents of the tertian type; there have been however some remittents of considerable severity. An emetic was administered and was followed by a purgative, and during the presence of pyrexial symptoms, the patient took saline diaphoretics. In some cases the lancet or leeches were required from the

severity of the fever or the appearance of local symptoms; on future fever days, quinine or cinchona was given, the former in doses of four or five grains, the latter of 3ii, about four hours before the time of the expected paroxysm and repeated hourly until the usual time of accession of fever had gone by. If the fever was tertian, no medicine with the exception perhaps of a purgative, was given on the intervening days. This treatment almost always at once cut short the fever and when two successive accessions were prevented, the cure was usually considered completed. In two cases venesection in the cold fit was tried, but unsuccessfully; such has been the treatment of intermittent fever.

Hepatitis. — In this disease the treatment consisted in subduing the inflammatory action in the liver and in removing its consequences. Depletion by means of the lancet, leeches, and mercurial purgatives, was employed. In venesection, the object was to lessen the momentum of the blood not to induce syncope; in combining mercury with the purgatives, the intentions were to aid in the removal of congestion in the liver by exciting increased secretion, and by bringing the system slightly under its influence, to promote the action of the absorbents that they might remove interstitial deposits resulting from the inflammation. After depletion had been carried as far as seemed to be beneficial, counter irritation by blisters was had recourse to. A case of abscess of the liver, terminated fatally; one of the two cases which accompany this report is of hepatitis.

In my cases it may be observed that the quantity of blood abstracted by leeches is noted, this I ascertained by having them weighed before their application; and after they had fallen off. As the capacities of leeches vary much I found it useful to note this, for it enabled me to determine with greater accuracy the number of those then in use which ought in any case to be applied, and although the effect produced on the disease is for the most part the best criterion of the propriety of their repetition, it was satisfactory and not altogether useless, to know how much blood a patient had already lost during the treatment.

Having for many months kept notes of the weight of the leeches applied in Hospital and the blood which they took, I find that the latter is always nearly in proportion to the former, whereas the proportion which the blood taken bears to the numbers applied, varies according to the numbers of times the leeches have before been used. I now therefore generally prescribe them by weight instead of by numbers, as from my observations I find it a much more accurate way of

performing depletion by them. According to the memoranda kept, they take four or four and half times their own weight of blood, so that if ℥iv. be ordered to be supplied, I expect from ℥xvi. to ℥xvii. to be taken by them. The leeches which have chiefly been the subject of my observations are obtained by the leechman from Ahmednuggur, but are I believe originally brought from Burhampoor.

Thoracic Inflammation. — These were all cases of catarrh excepting one in which there existed disease of the lungs of long standing. The patient was sent to the sea coast and a statement of the case was then furnished.

Small Pox. — This disease was very prevalent during the last cold season in the town of Sholapoor and among the natives in the cantonment. In one hundred and sixty-two cases among them, of which I had intelligence, but which did not come under medical treatment, twenty-five proved fatal ; the deaths thus being 15.43 per cent. Of the two cases which occurred among the Europeans of the troop one was modified by previous vaccination. The other patient had not been vaccinated and in him it was confluent and ended fatally on the twelfth day.

Spleen Disease. — The means used to remove this disease were chiefly purgatives and leeches, and vegetable bitters with chalybeates. In one of the cases treated, there was severe inflammatory disease of the viscus which required repeated venesection and the very free use of leeches ; the recovery was slow, but perfect. In course of the disease the liver became affected. In treating the hepatic disease, five grains of calomel had been twice given combined with purgatives, when the mouth became sore. I had before seen inflammation of the liver supervene on that of the spleen. In most other cases, the affection of the spleen was combined with some other complaint. In some the spleen was in a chronic state of enlargement which resisted all attempts to reduce it, many of the men of this troop have enlarged spleens which give them little or no uneasiness until they have a fresh attack of fever. Of the remaining medical cases in the table, there are either so few under each head or they are so trivial as not to furnish sufficient grounds for remarks.

Surgical Cases.

The Externa. Inflammations where chiefly boils and buboes.

Epistaxis. — In these cases the bleeding was checked by cold applications, in both cases it was combined with, and probably, depended on enlarged spleen.

Fracture. — The only case which happened, is a compound fracture of the humerus from the bite of a horse, the muscles are injured and it is yet doubtful if the man will recover the perfect use of the arm.

Gonorrhœa. — The cure in the disease was affected by cubebs in doses of ʒii. thrice a day or balsam of copaiba. If the running continued long, bougies were passed and astringent injections used.

Syphilis. — There were only two cases of secondary disease among these. The treatment in the primary cases has been to give blue pill so as slightly to affect the mouth, the patient being kept on low diet.

Contusions, Sprains and Wounds — were for the most part unimportant injuries which were received in drunkenness. One case of wound was of a serious nature, the patient losing an arm and the sight of an eye besides being burnt and wounded in the face. The accident occurred at the annual review at Sholapoor when the man was ramming a gun. Amputation above the elbow was performed by the double flap operation as soon as possible after the injury. The man has been sent before the invaliding committee.

In practice among the natives connected with the troop but few medical cases of importance occurred. There were two cases of intermittent cephalalgia which readily yielded to cinchona, and a case of paralysis which recovered. Among the surgical cases, there was one of fracture of the patella and three of fracture of the radius which were treated by position only, and it answered well at least as long as the cases were under observation, two however went away before the cure was completed. I may mention also two cases of amputation of a finger and a case of necrosis of one side of the inferior maxilla in a child eight or nine years old. It was consequent on small pox, on the dead bone separating which it did in two and half months from the commencement of the disease, the new arch of the jaw was tolerably firm.

In obstetric practice, I removed from the uterus of the wife of a gun lascar, a firm fibrous tumour weighing two pounds ten ounces.

There was a case of puerperal convulsions and one of arm presentation in which turning was performed.

Report for 1839.

In the subjoined* statement of the strength and number of sick I have included only those actually belonging to the first troop that it may strictly be a record of the troop.

In the following table I have, however included all who have been attached belonging to the other troops, viz. recruits for the 2d at Deesa, and sickly men belonging to the 3d and 4th troops who were either left behind or sent from the field. The proportion of sick is in consequence larger.

* *Stationed at Poona.*

Strength 110.

Included in the returns	103
Absent beyond the Division	7
Total	110

Number of Sick.

Remained on 31st December, 1838	19
Admitted in 1839	301
Discharged	308
Died in Hospital	3
Remaining on 31st December, 1839	9
Average daily number of sick for the year 14.99 per cent.	
" " " of convalescents "	
Died without receiving medical treatment	1

Changes since 31st December, 1838.

Recruits joined	10
Discharged from the service on account of disease	0
Discharged from the service for other causes	0
Invalided	1
Pensioned	3

The following Table shows all the diseases which were treated. Of these more than one sometimes occurred in the same patient.

Diseases.	January.	February.	March	April	May.	June.	July.	August	September.	October.	November.	December.	Total treated.	Cured.	Died	Sent for change of air or invalided.	Remaining under treatment
Cardiac disease	..	..	1	..	..	..	..	4	..	2	..	1	8	7	..	..	1
Catarrh and cynanche	..	2	..	..	1	1	1	1	1	1	1	..	9	8	..	..	1
Cephalalgia	1	2	4	..	1	..	1	4	2	..	1	..	16	16	..	..	..
Cholera Spasmodica	..	..	..	..	1	..	..	..	..	1	..	..	2	2	..	..	..
Colic	..	1	1	..	..	..	..	..	..	..	1	..	3	3	..	..	..
Cutaneous disease	..	..	1	..	..	..	..	..	..	1	..	..	2	2	..	..	..
Delirium Tremens	1	2	1	..	..	..	1	..	..	..	..	..	5	5	..	..	..
Diarrhœa	1	2	1	2	1	4	..	1	..	..	1	1	14	14	..	..	..
Dislocation	..	..	..	1	..	..	..	..	..	..	..	..	1	1	..	..	..
Dysentery	2	..	2	..	2	4	..	8	2	..	..	..	20	19	..	1	..
Dyspepsia and Gastro-enteritis	..	..	..	1	2	1	..	1	..	2	3	1	11	10	..	..	1
Erysipelas	..	1	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..
Fevers	8	7	4	4	5	8	10	11	6	6	2	1	72	71	1	..	..
Fractures	..	..	1	..	..	1	..	2	..	1	..	..	5	4	..	1	..
Gonorrhœa	2	2	5	4	3	2	..	3	1	2	2	2	28	27	..	..	1
Hepatitis	6	4	8	3	2	1	2	3	2	1	3	3	38	36	1	..	1
Hœmorrhoids	..	..	..	..	..	..	..	..	..	..	1	..	1	1	..	..	..
Opthalmic diseases	..	..	1	..	..	..	..	1	..	1	..	..	3	3	..	..	..
Odontalgia	..	..	..	..	..	1	..	..	..	..	..	..	1	1	..	..	..
Paralysis	..	..	1	..	1	..	..	..	..	..	..	..	2	1	1	..	..
Phlegmon Paronychia and Bubo	..	..	..	2	..	..	..	2	..	1	2	2	9	8	..	..	1
Poisoning	..	..	..	..	..	..	..	..	1	..	..	..	1	1	..	..	..
Pulmonic diseases	1	..	..	..	..	..	..	..	..	..	1	1	3	2	1	..	..
Rheumatism	..	..	1	1	..	1	3	1	1	..	..	1	9	9	..	..	..
Spleen	3	..	1	..	..	1	2	..	..	..	1	1	9	9	..	..	..
Sprains	1	..	1	1	3	..	..	..	1	1	2	..	10	10	..	..	..
Syphilis	7	2	1	4	9	8	..	3	5	5	3	2	49	49	..	..	..
Tænia	..	..	..	..	1	1	..	..	..	..	..	..	2	2	..	..	..
Testis retroactus	..	..	..	..	..	..	..	1	..	..	..	..	1	1	..	..	..
Ulcers	3	..	4	..	3	3	..	..	2	3	..	1	19	19	..	..	..
Urinary Affections	..	..	..	..	1	..	..	..	..	..	..	1	2	1	..	..	1
Wounds Contusions Scorpion Sting	1	1	1	2	..	3	..	1	2	3	1	4	19	17	..	..	2
Total each month	37	26	49	25	36	49	20	47	26	31	25	22					
Total Cases treated during the year													375	360	4	2	9
Average daily Sick per-cent during the year 1⁻.47																	

The sick list has been heavier during this year, than the last among the men of the first troop even without including the attached sickly men from other troops. The following are some of the causes viz. the heavier duty the men have had at Poona and the greater inducements to leave the barracks in the sun. It is difficult to say, whether their intemperance has been greater here or at Sholapoor; at neither station have any amusements been provided for them unconnected with the canteen.

There has been a larger proportion of visceral disease requiring active and longer treatment, and the hospital here is far inferior to that at Sholapoor. It has two wards with floors scarcely raised above

the level of the ground; they are both open to the east and the west leaving thus generally a high wind blowing through them; the windows are ill contrived for ventilation opening only perpendicularly. There was until lately no fence whatever round the hospital to prevent the patients obtaining improper food and drink, an additional sentry was obtained for a very short time, but the other duties of the troop being heavy he was soon removed. Lately I have got a prickly pear fence planted to protect the back of the hospital; but it will be a long time ere it proves a fully effectual barrier.

Prevailing Diseases.

Hepatitis. — Has been the most prominent disease. The number of cases is nearly thrice as great as during the preceding year, and about six times greater than is recorded any previous year that the troop was stationed at Sholapoor. The exciting cause of this disease has often, though not always, been intemperate drinking; I am unable to state any other particular exciting cause. Bowel complaints bear nearly the same proportion to the general sickness that they did last year. Affections of the heart have increased from one to eight; with the exception of two cases they all followed hard drinking.

In noticing the various diseases that have occurred there is but little regarding their treatment that I have to add to what I stated in my last annual report.

Medical Practice.

Cardiac Disease. — In all the cases there was pain more or less severe in the left side of the chest; tightness across the upper part of the chest; palpitation, oppression of breathing and cough, and sometimes sputa tinged with blood. Six of the cases evidently were caused by hard drinking; in one this cause was doubtful, and in one the disease arose from cold caught while in hospital. The treatment followed was depletion by venesection or leeches, and purgatives; the use of sedatives chiefly tartar emetic and digitalis, and counter irritation. In one of the patients, an old worn-out soldier depletion was inadmissible.

Cephalalgia. — Three cases were neuralgic and remittent, and were treated with quinine. With the exception of two, the rest were the consequence of intemperance. In these, depletion and cold local applications were used.

Cholera Spasmodica. — Both cases were treated with stimulants internal and external without venesection. They were both rather weakly men.

Delirium Tremens. — In all, the chief remedy was frequent and long continued affusion of cold water on the head.

Dysentery and Diarrhœa. — The character of the former disease as it occurred in the hospital are the same as it presented at Sholapoor. The same treatment has been followed in nearly all the cases, in a few I tried the effect of large doses of ipecacuan combined with opium with partial success. One patient in whom chronic dysentery supervened on hepatitis, has been sent to Bombay for change of air. The greater number of bowel complaints occurred during the rainy season which commenced early.

Dyspepsia and Gastro-enteritis. — Except one case of dyspepsia all admitted under these heads, brought on their sickness by drunkenness; alkaline combined with sedative medicines were given at first, and afterwards vegetable bitters were sometimes given conjoined with neutral salts or alkali.

Fevers. — Of the seventy-two cases recorded twenty-nine were *quotidian*, twenty-six were *tertian*, six *remittent*, five *ephemeral*, three *continued* one *quartan* and two *eruptive* of an anomalous kind. There have been very few fever cases since October. Towards the end of the rains the fevers were chiefly tertian whereas previous to that time quotidians were most common. Among those of the continued and remittent types, were some of great severity and one proved fatal in March: death was preceded by passive hemorrhage.

The *eruptive* fever of which two cases occurred, is remarkable for the presence of numerous small dull red spots, hard and slightly elevated appearing on the trunk, face and extremities, either at the very commencement of the fever or after one or two days. The eruption is unattended with any heat, itching or other uneasiness, it gradually fades away without desquamation disappearing last from the extremities, about a fortnight or three weeks after its first appearance.

The fever is in general severe, either continued or remittent; with pains in the limbs, chiefly in the legs and feet, accompanied with some loss of power in them. When the pain is referred to a joint, no swelling or disproportionate heat is perceived in it. The con-

tinuance of the fever varies from a few days to about two weeks. I have in two years met with six cases of this disease, of which two were at Sholapoor and four at this station. Of the six, two occurred in the cold season, two in the hot and two in the rains. One patient was an officer, another a lady, and four were soldiers, treated in hospital. A case illustrative of this fever accompanies this report.

Hepatitis. — The cold weather has been most productive of this disease. In the many cases which have come under treatment during the year, I have steadily followed the plan recorded in my last annual report. In one case which afterwards ended fatally, I opened an abscess in the left lobe with the lancet. The patient had long been subject to attacks of hepatitis and on this account was left behind when his troop went on service. The substance of the liver in the neighbourhood of the abscess bore marks of long continued disease. The case of a foot artillery-man sent from Bombay with abscess of the liver, who died in the hospital is worthy of notice, although he does not properly come within the subject of this report. The tumefaction in the side gradually disappeared and after his death the abscess was found nearly empty and two hepatic ducts communicating with it were found carrying pus to the duodenum.

Paralysis. — One patient lost the power of his arm for a short time after hard drinking. The paralysis of the other was caused by disease of the brain and ended fatally.

Poisoning. — The patient had taken by mistake in the barracks some saltpetre instead of salts, an emetic was all that it was found necessary to give.

Pulmonary Disease. — The only case it is necessary to particularize, is the fatal one of Phthisis Pulmonalis. The patient had been unwell for several years and is mentioned in last report as having been sent to the seacoast, he was unable to do any duty on returning.

Rheumatism — It only occurred in a chronic form.

Spleen. — Several of these cases were of an acute nature and not preceded by fever. In these depletion by leeches and purgatives was the remedy used. In the chronic cases the treatment stated last year was followed.

Tænia. — The treatment in this disease which I follow and find quite effectual is the exhibition of a strong decoction of the bark of

the root of pomegranate in divided doses on an empty stomach in the morning, having the night before given a full dose of ol: ricini. The worm is expelled dead. In one of these cases a tænia lata and tænia solium were discharged from the bowels together.

In my last annual report, I stated that in employing leeches, I prescribed them by weight instead of by number, having found that the blood they took bore a steady proportion to their weight. This mode of prescribing them I continue invariably to follow, and I find it most valuable as I can regulate the quantity to be abstracted in topical bleeding with nearly the same precision as if the lancet were used.

Surgical Practice.

Fractures.—One of the five was an old fracture of the leg in a man belonging to the 4th Troop. Of the other four one was a compound fracture of the pelvis from the kick of a horse: active treatment was required to subdue the abdominal inflammation that followed, owing to displacement of the fractured portion of the ilium the power of motion of the thigh was impaired; he has in consequence been sent before the invaliding committee. Another fracture was of the pătella also from the kick of a horse, it was comminuted, but happily with very little displacement of the fragments. It was treated by position. The patient recovered the perfect use of the limb. A third was fracture of a rib received in falling against the corner of a cot. The treatment consisted in preventing the motion of the ribs by means of a broad bandage round the chest. General and topical bleeding were required. The fourth was fracture of the ossa nasi.

Dislocation.— It was dislocation of the scapular end of the clavicle and was received in wrestling. The man was thrown over the head of his antagonist and in falling headlong his shoulder struck against the edge of a cot. A bandage on the plan of Brasdor was applied but with the addition of sleeves fitting closely to the arms and extending from the shoulder straps to below the bent elbows, thus keeping the straps in the proper position. The patient was able to return to his duty between six and seven weeks after the receipt of the injury.

Syphilis and Gonorrhœa. — The aggregate of these cases has been nearly the same as during the former year. The only alteration in my treatment is, that I now rub the veneral ulcers freely with nitrate of silver, thinking that they afterwards heal more quickly.

Testis Retroactus. — The case which I have thus named is the only one remaining that requires to be noticed. When the patient

was at sword exercise, his right testicle was forced upwards into the inguinal canal and afterwards during severe straining, it passed into the abdominal cavity, where it remains. The man denies ever having had hernia, and a short time before the accident, I had strictly examined him previous to his being admitted to the Horse artillery.

Among the children connected with my charge, catarrhal ophthalmia and measles were for some time epidemic, both diseases I found of a tractable nature.

In practice among natives there have been very few cases of an interesting kind. Along with this report, I send the diary of a case of tetanus, treated with cannabis indica and tabacco enemata, it terminated successfully.

Report for 1840.

The Troop* was stationed during the greater part of the year at Poona, and while there, a very marked improvement in the health of the men was observable, the daily average of sick in hospital having fallen far below what it had been for many years.

* *Stationed at Poona nine months.*

In the Field three months.

Strength.

Included in the returns.	120
Absent on Command, beyond the division or on leave.	0
	Total 120

Number of Sick.

Remained 31st December, 1839.	9
Admitted in 1840.	295
Discharged.	292
Died in Hospital.	6
Remaining 31st December, 1840.	6
Average daily number of sick for the year.	9.23 per cent.
Average number of convalescents.	0
Died without receiving medical treatment	1

Changes since 31st December, 1839.

Recruits.	0
Discharged from the service on account of disease.	0
Discharged from the service on account of other diseases.	0
Invalided.	0
Pensioned.	0

N. B. — These numbers include men of the 1st Troop, only, the attached of other Troops are not included.

The number of cases of disease treated has been about the same as during 1839, but among them there were fewer requiring prolonged treatment, and a greater proportion of slight cases, such as hurts from petty accidents, &c. among the more severe diseases hepatitis and fever held the most prominent place during the preceding year, whereas during last year, from causes to be mentioned below, gastric and bowel complaints, have taken that place.

During the year 1839, of the total treated, the percentage of hepatitis was 10.13, of fever 19.20, and of gastric and bowel complaints 14.13 ; and during 1840, the percentage was of hepatitis only 4.04 and of fever 11.86, but of gastric and bowel complaints 24.26. Thus the proclivity to hepatitis and fever which had been contracted at Sholapoor, and of which I had occasion to make mention in my last annual report, had worn out and the men appeared to have become acclimatised in their new station.

Towards the end of the monsoon the Troop received orders to proceed to Sind on Field service, and in consequence had a draft of men from the 2d Troop to complete it to 120, and replace some sickly men who were not then in a state for active service, and some whom it was thought necessary to bring before the annual invaliding committee.

On the 2d October, we marched from Poona towards Bombay, taking with us a draft 33 men for the 4th Troop, which we were to meet in Sinde, our march as far as Kandala was not attended with any circumstance worthy of remark, hitherto we had fair weather with a temperature about equal to that of Poona, and only a little increase of humidity in the air.

On descending the Ghat, the temperature as indicated by the thermometer increased a good deal and to the feelings it was oppressive owing to the atmosphere containing much more moisture as was ascertained by the hygrometer. Many of the men were now affected with diarrhœa and applied for medicine, three of those who did not apply at first for medicine were afterwards admitted for dysentery in which the diarrhœa had terminated.

On the 9th October, we arrived at Panwell where we were to embark the guns and heavy baggage for Bombay, and then we were to march thither by Tannah, but it was found that the route was impracticable at that season as there was no road through the flooded rice fields. Ere this was ascertained, however, the men's beds had been sent off, and only a carpet to lie on and his cloak to cover him had been kept for each, and no boats were ready for the transport of the men and horses to Bombay.

The weather which had been fair with only an occasional light shower, now changed, and for three successive nights we had thunder storms with very heavy rain. The tents continued wet and the clothes of the men were either wet or damp, the soft ground on which we were encamped, had become muddy and no straw was procurable to lay on the floors of the tents. From exposure to the inclemency of the weather during the night between 11th and 12th October, six men were admitted with symptoms of disease simulating cholera, and one with pericarditis. On the 12th October, the Troop with the exception of the sick, crossed the harbour and I removed the hospital to a shed on the bunder to wait for the boats which took us to Bombay on the 13th.

From what I saw at this time at Panwell, and during a march in the middle of the monsoon with recruits between Kandala and Poona, and also what I have seen at Poona of the consequences of marches from Panwell, to that station during the monsoon, I am convinced that a great saving of life would be effected by the erection of pendals at each halting place for the accommodation of troops. That this would not ultimately be an additional expense to Government, but the contrary from the saving in the wear and tear and the carriage of tents, has I believe been shown by Captain Sinclair, Commissary of Ordnance Stores at Poona.

It ought to be insisted on that the tarpaulings which are allowed should be taken to protect the bedding from rain on the march; the mat coverings of the carts of the country being insufficient during the heavy rain that falls in the monsoon; the roofs of the dhoolies also require to be better painted than they usually are, to render them water tight.

In Bombay the Troop was quartered in Fort George barracks and as is usual among soldiers, the meeting of old comrades was made the occasion of drunkenness, and from this followed eventually grievous consequences.

It is thought necessary to send two or three European soldiers in each native boat in charge of the troop horses put on board it, thus a large portion of the corps is removed from all medical aid for a period of two or three weeks, and for this the debaucheries of the short time spent in Bombay render the men ill prepared. Of those sent on this duty on the present occasion, one died of delirium tremens, two or three days after leaving Bombay, and some of the severest of the cases which filled the hospital at Kurrachee had their beginning at sea. After the horse boats were de-

spatched the remainder of the Troop embarked on board a Steamer with the families of the sepoys of a native regiment, in all there were about 300 persons for whom there was no other accommodation than a crowded and wet upper deck, and even for the sick there was at night but the scanty shelter of a boat's awning to protect them from the spray and dew, the danger of fire rendering it necessary that the larger awnings should be furled. Although we had favourable winds we were five days in reaching Kurrachee, owing to the Steamer having in tow two large native boats with the battery, camp equipage and stores. During this voyage one man had a severe attack of pneumonia and another who was convalescent from fever, had a relapse which proved fatal after our arrival at Kurrachee.

We were a month at Kurrachee, during which time the men lived in the slight temporary barracks, and the severe cases among the sick were received into the ill constructed foot artillery hospital, the less severe cases remained in the tent. The mean of the daily minima by thermometer was 59° and of the daily maxima 89° Fahrenheit, after 12 or 1 o'clock a south-westerly breeze began to blow, it gradually veered to north-west and about 9 or 10 o'clock at night, after a short lull the land wind set in gently from the north-eastward and continued until about 11 A. M. or noon, gradually increasing in strength. The atmosphere during the north-easterly wind was very dry.

After our arrival the number of sick gradually increased and dysentery was the most formidable disease, it proved fatal in two cases just before the Troop marched, and two others were left in the depot hospital of H. M. 40th Regiment, in a nearly hopeless state, and I have since heard of their deaths. The two who died in the Troop hospital, had each several small abscesses in the liver, both the patients were hard drinkers, and one had come up in a horse boat where the disease commenced insidiously. In one of the two cases that were transferred to the hospital of the depot of H. M. 40th Regiment, acute symptoms of hepatitis came on, when dysentery of a sthenic character had been subdued; in the other, symptoms of invagination of the intestine in the neighbourhood of the cœcum existed. A few cases of acute disease of the lungs also occurred during our stay.

At the end of November, we marched from Kurrachee for Upper Sinde, and as we had to pass through a country almost uninhabited and devoid of supplies, a large commissariat accompanied us for which camels were the only carriage, six of these animals were given to the hospital with kudjavas for the sick.

Our road at the commencement lay to the north-eastward over

an uncultivated level plain rather thickly covered for the first ten miles with large euphorbia bushes, capparis and zizyphus and some galega; on our left were some low hills, which on examination, are found to be curiously disposed in five somewhat concentric ridges with abrupt inward faces, while outwardly the strata are inclined at angles varying from 25° to about 80°.

In a central basin are the Thermal springs. On my visit to them while the troop was at Kurrachee, I found the heat of one spring, that which flowed into thes wamp famous for the hundred of alligators that inhabit it, to be 98° Fahrenheit, another at some distance, which followed into a reservoir was 119° and near it, issuing from a coral rock, was a small stream at 129°. I took away with me some of the water for analysis and found it contained nothing but a minute quantity of saline matter, chiefly chloride of sodium — it differed from the well water at Kurrachee only in temperature.

The plain over which our road lay ended at a low range of hill called Hola about four hundred feet high. The euphorbia nearly disappeared except at places where the soil was poor, it was replaced principally by mimosas. The surface of the plain was in many places incrusted with salt, and the water was often so brackish as to be unfit to drink. On crossing the low range we entered the Jubbul Moolk or Hilly country. Our fourth encampment was in a confined spot on the Kudajee river, where it passes through a narrow ravine between the Hala and another low range which approaches it forming an angle; here we halted a day.

The weather on the plain had been similar to what we had experienced at Kurrachee, but here in the morning we were enveloped in fog and had heavy dew, and during the day the air was close and moist. A general tendency to diarrhœa showed itself, and there were several applicants for medicine: one man was admitted with dysentery.

At this encampment many of the camels became sick and died, the same had occurred here to the camels of the troops who had marched before us, and it had been noted in the route furnished to us that they had died from eating some poisonous plant. Among others a fine camel of my own was taken ill and in the undigested food he vomited, I found the leaves of the nerium odor which satisfied me as to the cause of the mortality. The oleander grows very abundantly on the bank of the Peeperee and Kudajee rivers along with the tamarisk on which the camels feed. The sickness generally showed itself first in the animal refusing its grain and water, vomiting then came on and usually continued until death; there was hanging of the lower lip and heaviness and vacancy of the eye;

the abdomen became distended; the breathing was interrupted as if by gulping or gasping; the excretions were not suppressed, sometimes there was purging; the animal had disinclination to move and on being made to rise there appeared to be vertigo, it staggered and sometimes fell; at last it died in convulsions, after a period varying from a few hours to a day or two. I examined three of the poisoned camels, and found in two, the mucous membrane of the omasum inflamed, and in the third the inflammation had affected the reticulum, the omasum and the abomasum. In each of the three camels I found the lungs to contain hydatids; in two they were numerous and as large as limes: in the other there was but one large one — these I considered unconnected with the cause of death.

Some horses also had been poisoned here, although all of ours escaped, parhaps through the care that was taken to pick out the dry oleander leaves, which were brought in with the grass. In places where the oleander grows so abundantly, the forage for the camels ought to be cut and brought in to them.

After leaving the Kudajee river, the asclepias gigantea takes the place of the nerium on the banks of the streams, and the general appearance of the vegetation changes. — A different species of mimosa appears, and we now meet with the light green drooping piloo of which the camels are so fond; the water has less saline matter; the hills become more lofty; they are of varied outline, some are tabular, others gently rounded or crenated, serrated or peaked; they are much intersected with chasms and frequently have precipitous sides which sometimes disclose the strata to be arched.

These hills are of limestone and contain myriads of testaceous cephalopodous mollusca chiefly polythalamous, and indeed fossil remains of these animals form a great proportion of the mass of the hills among which we passed, some of which, such as Kambhoo and Keerutter are three or four thousand feet high. The most common genera of these cephalopoda are the nummulite, siderolite and the scaphite, the remains of echinodermata, also and a few testaceous gasteropoda are found in the rock, and at some places as at Pakuw and Mulleeree, gasteropodous and conchiferous mollusca abound in lower hills overlying the bases of the mountains, and in these the limestone is argillaceous, but here again there are strata almost entirely composed of cephalopoda, and these strata alternate with a soft calcareous sandstone devoid of organic remains.

After crossing the dry bed of the Muraee river close under Kambhoo, we entered the narrower valley of the Baroon river, where the Brahoo country commences, having on our right the extensive jut-

ting range which forms the western boundary of the lower plain of the Indus.

The bottom of the valley now contained much shingle similar to the neighbouring rock and but little rounded, mixed with alluvium, and in it were seen partly exposed large petrified trunks of dicotyledonous trees of different genera, and fragments of these were plentifully scattered on the surface of the ground for several miles. It appeared as if the trees growing in the valley (and it may yet be found the animals inhabiting it also) had been overwhelmed with the detritus swept from the surface of the neighbouring mountains, probably by the waters of the deluge. The trees thus buried had become petrified by the long continued percolation of water saturated with carbonate of lime and the superincumbent alluvium having been gradually washed away, they have become exposed, the mountains are again covered to their summits with similar detritus.

At Mulleeree the waters begin to run to the northward. The second march from thence we emerged on the upper plain of the Indus, the hills gradually diverging. On the right the Dharun range (called "Lukkee" in the maps) in which the jutting range terminates runing towards the river at Sehwan, and the comparatively low Budrow overtopped by the loftier Keerutter range continuing its northerly direction.

During the twelve days that were spent in marching among these mountains from Kudajee to Roree on the plain of the Indus, there were but two admitted into hospital, one for a kick from a horse, the other for gastrodynia caused by cold. On coming to the plain we found the daily range of the thermometer much greater than it had been in the mountainous country, and the cold during the march in the morning (sometimes near the freezing point) was much felt and several had attacks of gastrodynia.

We marched on the right side of the Arul river over part of the dry bed of the Munchur lake, and parallel with the Nara rivers over a fine alluvial plain, intersected by former water courses and at present mostly overgrown with jungle of tamarisk or sounder. In many places traces of former embanked fields are visible, where the tamarisk now abounds the surface of the ground is in some places thickly encrusted with salt.

We passed through Larkana to Shikarpoor, where we arrived at the close of the year, having accomplished our march of about three hundred miles from Kurrachee in a month. Very few admissions into hospital took place during the march, this is apparently at-

tributable to the excitement of the change and the absence of the means of drunkenness.

In the following table I have as usual entered separately each case of disease that occured in hospital, even if two were present in the same individual, and in it are included the diseases of the attached of other Troops

Table of Diseases treated in Hospital of 1st *Troop H. B. during* 1840.

Mean Temperature	67.3	70.5	76.0	85.0	83.7	79.9	76.1	75.1	75.5	:	73.9	65.2					
Mean Range of Termometer.	22.1	19.3	17.9	21.3	19.7	20.7	7.0	9.7	20.0	:	30.0	34.4					
Diseases.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total Cases treated.	Discharged to duty.	Died.	Transfered.	Remaining under treatment.
Cardiac Diseases	1	2	2	1	..	4	1	1	1	1	1	..	15	15	..	..	..
Cattarrh and Cynanche tonsil	1	..	..	2	1	..	..	..	..	1	2	..	7	7	..	..	..
Cephalalgia	4	2	1	2	1	3	2	2	..	1	3	..	21	20	..	1	..
Cholera	..	..	..	..	..	..	..	..	..	7	..	..	7	7	..	..	..
Colica	..	..	..	..	..	1	1	1	..	..	1	..	4	4	..	..	..
Cutaneous Disease	1	1	..	..	..	..	..	..	..	..	1	..	3	3	..	..	..
Cynanche parotidæa	1	1	..	..	..	..	..	..	..	..	..	..	2	2	..	..	..
Delirium Tremens	..	..	..	2	1	..	1	1	..	..	1	..	6	6	..	..	..
Diarrhœa	1	1	..	..	1	1	1	..	1	1	1	..	8	7	..	1	..
Dislocations and Sprains	3	1	1	3	3	..	2	2	2	..	1	..	18	18	..	..	..
Dysentery	..	1	3	2	3	1	5	1	2	5	10	1	34	28	2	3	1
Enteritis	..	..	..	..	..	..	..	1	..	..	..	..	1	..	..	1	..
Epilepsy	..	..	..	..	1	..	..	..	..	1	..	1	3	3	..	..	..
Febris	4	3	4	..	2	4	5	6	1	7	3	5	44	42	1	..	1
Fractures	..	1	1	..	1	..	..	..	1	..	..	..	4	4	..	..	..
Gastro-enteritis Gastrodynia and Dyspepsia	1	1	2	3	2	4	4	1	3	6	2	4	33	32	..	..	1
Gonorrhœa	1	1	..	2	..	..	..	1	..	2	4	..	11	11	..	..	..
Hæmatemesis	..	..	..	..	..	..	..	1	..	..	..	..	1	1	..	..	..
Hemorrhois	..	..	..	..	..	..	..	..	..	..	1	..	1	1	..	..	..
Hepatitis	..	3	2	1	3	1	..	..	2	1	2	..	15	13	1	1	..
Odontalgia and Otitis	1	..	1	..	..	..	..	..	..	..	..	..	2	2	..	..	..
Ophthalmic Disease	..	1	..	..	..	..	..	..	1	1	..	..	3	3	..	..	..
Peritonitis	..	1	..	..	..	..	..	..	..	..	..	..	1	..	1	..	..
Phlebitis	..	..	1	..	..	..	..	..	..	1	..	..	2	1	1	..	..
Phlegmon, Bubo, Paronychia, &c.	6	2	1	2	3	..	2	..	..	1	1	3	21	19	..	..	2
Pulmonic disease	..	..	..	..	..	..	1	..	..	2	2	..	5	5	..	..	..
Rheumatism	2	2	1	1	2	..	1	1	2	1	5	1	19	18	..	..	1
Rupture of Muscle	..	..	..	..	..	..	..	..	..	1	..	..	1	1	..	..	..
Spleen	..	3	3	..	..	1	2	..	1	..	..	..	10	9	..	1	..
Syphilis	2	..	3	4	5	..	4	..	2	3	1	..	24	24	..	..	..
Ulcers. Dracun.: Contu	3	4	5	4	7	3	2	3	5	5	2	2	45	45	..	..	..
Total	32	31	31	29	36	23	34	22	24	48	44	17					
												Total	371	351	6	8	6

Average daily member of Sick 6.54.

In my annual reports for the years 1838 and 1839. I have entered so fully into my treatment of most of the diseases, now under consideration, that I have but little to add, I shall therefore, review shortly the more important diseases, entering into the treatment only when this has not been done before.

Medical Practice. The nine cases which remained in Hospital at the end of the preceding year all in time returned to their duty.

Cardiac disease. — The fifteen admissions for cardiac disease occurred among nine men, three having had relapses: in one of these three there was hypertrophy of the heart, and he was transferred to the foot artillery in consequence. The disease generally showed acute symptoms of pericarditis and was caused by excessive spirit drinking and exposure at the same time to wet or cold night air, thus the commencement of the monsoon was an occasion of its increased prevalence. One case only was admitted which was not caused by the abuse of spirits, and it occurred during the heavy rain which fell at Panwell when the Troop was waiting for boats.

Cephalalgia. Two cases were neuralgic and intermittent and were treated as usual with quinine given to anticipate the paroxysms. Two were connected with syphilis, and one of these patients, a man of the fourth Troop was transferred with other sick to the depot hospital of H. M.'s 40th at Kurrachee on the troops marching thence. Almost all the others were effects of drunkenness.

Cholera. Under this head are classed seven cases which approached more nearly to that disease than to any other; six of them occurred at Panwell from exposure to cold and wet, and the other just after our arrival in Bombay. The attack was sudden in its accession — there was vomiting and purging with cramp-like pain at stomach or through the bowels; prostration of strength and coldness of surface with thirst: in one case there was incipient collapse, the dejections were watery but not conjee-like; ammonia with opium were given internally; in several blood was taken from the arm; hot turpentine and blisters to the epigastrium with dry frictions to the extremities. A copy of one of these cases accompanies this report.

Colic and Gastrodynia. — Were generally brought on by cold.

Cynanche Parotidæa. — The two instances of this were in men whose children were suffering from the disease which was then epidemic.

Delirium Tremens.—The proportion of this disease was about the same as in former years. The treatment was the same.

Diarrhœa.—But eight cases are entered in the table, those being all that were admitted into hospital. But on descending the Bhore

Ghat from the Dukhun to the Konkun where the atmosphere at a high temperature was nearly saturated with moisture, a great portion of the men were affected with looseness of the bowels.

To each of twelve who applied for medicine, I gave a dose consisting of magnesia carbon. ʒij pulv: jalapœ gr. xv pulv: ipecac. gr. iss. ol: menth gtt. iij. and without an exception it removed the complaint. Three who did not at first apply for medicine were afterwards admitted for dysentery in which the disease had terminated. At Kudajee in Sinde where, as I have before mentioned, diarrhœa was common, I used the same medicine.

Dysentery. — One chronic case that was mentioned in last year's report as having been sent to the Presidency for change of air, returned without improvement and on our leaving Poona was transferred to the 2nd Troop and recommended to be brought before the invaliding committee. All the other cases that occurred at Poona were of the same character as I had before met with in the Dukhun and described in my reports.

The disease in the Konkun and at Kurrachee was mostly of a more insidious character and attended with less acute symptoms : in four at Kurrachee it was complicated with disease of the liver; three of these were alluded to in in the preliminary part of this paper and the fourth was long under treatment.

The remedies used were general and local bleeding, ipecacuanha conjoined with small quantities of jalap frequently repeated, or ipecacuan alone and occasional mild purgatives. In cases complicated with hepatitis, calomel was given conjoined with the ipecacuan. The case which was admitted at Kudajee and also a few at Poona were treated with ipecacuan in doses of ℈i or ʒss with tinct. opii. at bed time, and a purgative in the morning. Not omitting venesection when the disease was severe. I have rarely seen the large doses of ipecacuan retained even when tinct. opii. ʒiss has been conjoined.

Dyspepsia and Gastro-Enteritis. — As usual were chiefly the effects of drunkenness.

Enteritis. — But one case occurred, it was severe and required active general and topical bleeding. The patient was only convalescent when the troop marched from Poona — therefore was transferred to the 2nd Troop.

Epilepsy.—One of these cases was a relapse; both attacks followed continued drunkenness. The other patient was a recruit who had

been sent back from the 3rd Troop when in Sinde he was transferred to his Troop when it returned from service.

Fevers. — I have already referred to the decrease in the number of admissions under this head. One case of remittent fever ended fatally at Kurrachee. In a patient suffering from intermittent fever bloody urine was passed; during the cold fits the fever was obstinate and at last yielded to venesection during the rigors. A copy of the diary of this case is forwarded with this paper. The following shows the types of the forty-four cases of fever.

Continued.	Remittent.	Quotidian.	Tertian.	Ephemeral.
2	8	14	3	17

The eruptive fever which I described in my last report, I met with this year in a solitary instance and that was in a child.

Hæmatemesis.—The vomiting of dark clotted blood occurred on two successive days and then stopped, the man had had a fall on his back five or six days before, and he ascribed the complaint to this cause, none other was apparent.

Hepatitis.—The great decrease of admissions under this head has been made mention of already. The passage of biliary calculi in one case ended fatally from the violence of the inflammation it excited.

Peritonitis. — The patient, a serjeant, was brought to hospital in a state of collapse after having drunk during the day, fifteen drams of spirits (there are forty in a gallon). He had been rather unwell for two or three days, he died a few hours after admission.

Phlebitis. — One of these cases ended fatally it came on after bleeding for inflammation of the liver and was attended with severe fever. The other occurred after bleeding during the treatment of pneumonia, it terminated favourably. Constant fomentations during the day and poultices at night, and leeches, were the chief remedies used.

Pulmonic Disease. — There were five cases in all, viz. two cases of bronchitis, one at Poona during the monsoon, the other at Kurra-

chee in November, two cases of pneumonia, one after exposure to cold and wet at Panwell, the other from the same cause on board the Steamer, and one case of pleuritis at Kurrachee. The principal treatment consisted in general and topical bleeding in all these forms of disease, and in the free use of tartar emetic and ipecacuan in the acute stage, and when the inflammation was subdued, in blistering. All recovered.

Rheumatism. — All were sub-acute or chronic, I have generally treated this disease with tartar emetic in doses of $\frac{1}{4}$ or $\frac{1}{2}$ a grain combined with extract of conium grain iv. or v. every four hours, in the sub-acute form, and with the same combination or with iodide of potassium and extract of conium in the more chronic form with the happiest effect. The conium is a much more efficacious anodyne in rheumatism than either opium or hyoscyamus. A little before leaving Poona, I had received from England some extract of aconite which I had few opportunities of employing, and I found it very useful, especially in a European woman suffering from acute articular rheumatism. In that case I used it uncombined and the disease yielded in a few days : the medicine caused copious diaphoresis.

Spleen. — Some of the cases were men who had been sent to Poona from their troops in Sinde on account of obstinate fever. Two cases were acute and required active treatment; in one of the two the man had received a blow on the spleen which had been for many years enlarged this man's general health being bad, he was unfit to accompany the troop on service. The treatment of this disease was the same as stated in former reports.

No other medical cases require to be mentioned.

Surgical Practice. — *Dislocations and Sprains.* The only case of the former was a dislocation of the head of the humerus downwards and forwards it was reduced by means of pullies. Among the numerous patients with sprains one from repeated injury to the ligaments of the ankle joint lost the free use of it and thus being unable to mount and dismount quickly he was left with the 2d Troop with a recommendation that he should be transferred to the foot artillery.

Fractures. — Two of the fractures were from falls on the steps at the doors of the barracks in Poona. A very abundant source of injury to the men when drunk, from their imperfect construction in not being long enough or curved backwards to meet the wall on each side of the door ; as they are at present, many fall down their abrupt side. In these two cases the bones fractured were a rib and a

fibula, the former was treated by restraining the motion of the ribs by a broad bandage round the chest. The fractured fibula only required the limb to be kept at rest. Another fracture was of the clavicle caused by a fall from horseback; the fractured ends were kept in place by Brasdor's bandage. The fourth case was a fracture of the lower jaw near the angle and also at the chin, the broken ends were kept in apposition by silk ligature tied round the teeth and a paste board splint moulded when wet to the jaw; the fracture was received in falling.

Rupture of Muscular fibre. — Some fibres of the right rectus abdominis muscle were ruptured in riding hard up and down the Bhore Ghat on duty when the Troop was descending. A day or two after the injury the patient suffered very severe pain. Local bleeding and rest were requisite.

Syphilis and Gonorrhœa. — The number of admissions for these diseases was less than half what it had been the previous year. The treatment has not been changed.

Summary of Cases — Which occurred among the troop followers chiefly natives.

Fractures.— One Compound fracture of ossa nasi in a ghorawala from the kick of the horse, the fragments of bone were elevated.

One simple fracture of left radius close to the wrist from a fall from horseback.

One simple fracture of right radius and ulna from a fall from horseback.

One compound fracture of eight radius and ulna from a fall from horseback.

One s mple fracture of left tibia from the kick of a horse.

These four last cases were treated with splints. All terminated successfully.

One compound transverse fracture of right patella from the kick of a horse. When the man was brought to hospital the probe passed between the fragments of bone to the back of the joint. The limb was kept fully extended on a splint and thigh bent on the body. By leeches and cold lotion the violence of the inflammation was subdued. The fragments united closely and the man recovered without stiffness of the joint.

A Gunshot wound of the ear and cheek by a musket ball in a native boy on the ball practice ground. The meatus auditorius was di-

vided, but the integuments above and below the wound connecting the ear with the head were undivided : the wounds were rapidly healing when we left Poona.

Poisoning with Opium. — In a native woman proved fatal. A stomach pump was borrowed and used but it was too long after the poison had been taken.

Tetanus. — A case of idiopathic tetanus occurred in a native on the march to Panwell, the paroxysms chiefly affecting the muscles along the spine came on so suddenly as to throw him down while walking. He was sent back to Poona.

At Poona during the year I met with two cases of tetanus in women a fortnight after parturition, one of the patients only had had any difficulty in delivery. In one the disease ended fatally. I tried freely the extract of cannabis indica, but it had little or no effect. In the other case also I tried it for some days, giving ten grain doses of the alcoholic extract, three or four times a day without benefit, the woman then refused to take any medicine and finally the disease went off spontaneously.

Intermittent Menorrhagia — of tertian type in an Indo-Briton, the wife of a soldier of the troop, the complaint was cured with quinine given in repeated doses close on the expected time of return.

In Obstetric Practice. — *Presentation of the Arm.* The child's forearm had been pulled off at the elbow in forcible attempts to deiver the woman before I was called in. The patient was a native. I delivered by turning and the woman's life was saved.

Presentation of an arm and the funis. — Here also the child was dead, I turned the child and delivered the woman. She recovered speedily. She was a native.

Hydrocephalus in the child and the face turned to the pubes.—Here also I turned the child which I then found was dead; not being yet able to extract it, I lessened the head with the perforator and delivered the woman. The mother, a native, recovered soon.

Adherent placenta removed ; the cord had been broken short off.

Flooding after delivery of great severity terminated favourably

There were two patients with scirrhous disease of the uterus for whom I could do but little.

Among the children of the soldiers the epidemics of the year were cynanche parotidæa and pertussis.

Nominal List of Men of 1st *Troop Horse Brigade, who have died in Hospital, from* 1st *January to* 31st *December,* 1838.

Names.	Ranks.	Present age.		Period of service in India.		Country.	Disease.	Date of		Duration of disease.		Appearance on Dissection.
		Years.	Months.	Years.	Months.			Admission	Decease.	Months.	Days.	
John Evans . .	Serjeant.	37	..	13	..	Wales.	Cholera.	20 Feb 1838.	20 Feb 1838.	..	1	Both ventricles of the heart full of blood, some venous congestion in the lungs. The Liver was enlarged and speckled.
John Cherry .	Gunner	24	..	1	4	England.	Small Pox	20 Feb 1838.	2 Mar 1838.	..	10	The arachnoid membrane in part thickened and opaque. The ventricles of brain filled with serum. The lining membrane of larynx inflamed and covered with paste like matter.
Robert Simpson	Bombardier.	38	..	17	..	Scotland.	Hepatitis.	15 Mar 1838.	1 Apr. 1838.	..	17	In concave side of the right lobe of liver a large abscess whose walls at one part bore evidence of having long existed; at other parts they were ragged and without any adventitious lining membrane. The cellular membrane round the Hepatic vessels was condensed and hard.

Nominal List of Men of the 1st *Troop H. B. who have died in Hospital, from the* 1st *January to* 31st *December,* 1839.

James Urquhart	Gunner.	36	..	15	10	Scotland.	Fever.	18 Mar	27 Mar	..	10	Thickening of arachnoid and serum in ventricles of brain.
Mich. Dunford	Do.	32	..	11	10	Ireland.	Phthisis pulmonalis.	28 Jan 1839.	12 Mar	4 Years.	..	Right lung with tubercles in upper part. Left being nearly all destroyed by suppuration.
James Quinn .	Do.	30	..	9	3	Do.	Paralysis.	28 May 1839.	11 Jul	2½	..	Right hemisphere of brain had middle and posterior lobes pultaceous.
4. Troop H. B. George Jones .	Farrier.	36	..	13	9	England.	Hepatitis.	28 Mar 1839.	3 June	Unknown.		Abscess in left lobe of liver; the neighbouring substance degenerated.

Nominal List of Men of the 1*st Troop H. B. who have died in Hospital from, the* 1*st January to the* 31*st December*, 1840.

Names.	Rank.	Present age.		Period of service in India.		Country.	Disease.	Date of		Duration of disease.		Appearance on Dissection.
		Years.	Months.	Years.	Months.			Admission	Decease.	Months.	Days.	
Michael Corbett	Serjeant.	31	..	9	9	Ireland.	Peritonitis.	Feb. 29 1840.	Feb. 29th. 1840.	Probably 3		Peritoneum covering paries and viscera inflamed, 2 or 3 lbs. of opaque serum with flakes of lymph in the abdomen.
John Power . .	Gunner.	28	..	9	1	Do.	Phthisis.	March 15 1840.	April. 2 1840.	..	15	Thickening of coats of veins of the arm and bend of elbow with close union to surrounding cellular tissue. Basilic. v pervious, median Basilic and median Cephalic, impervious, Cephalic in part containing pus the rest impervious. Lining membrane of vena cava and heart pink coloured; serum in pericardium. Serum on surface of brain.
Thomas Roberts	Serjeant.	31	..	11	1	Do.	Biliary Calculi.	June 26 1840.	June 29 1840.	..	21½	Lymph effused on and in neighbourhood of gall bladder and duct; adjacent substance of liver inflamed. Gall bladder distended, its coats thick and hard; mucous lining highly inflamed and stained black contained black friable calculi. Duodenum highly inflamed.
John Holland .	Gunner.	30	..	8	6	England.	Fever.	Oct. 27 1840.	Nov. 7 1840.	..	12	There was not convenience for dissection.
Michael Quiley	Do.	45	..	19	6	Ireland.	Dysentery.	Nov. 18 1840.	Nov. 27 1840.	about	22	Peritoneal coat of small intestine inflamed a little lymph effused. Large intestines bound to neighbouring parts by lymph abscesses in their walls. Mucous membrane already separated or in sloughy patches; invagination of left end of transverse colon. Liver with corrugated surface; two abscesses in the right lobe.
William Griggs	Do.	36	..	11	6	England.	Dysentery.	Nov. 18 1840.	Nov. 27 1840.	about	14	Cæcum and ascending colon a mass of disease tearing on being handled. Abscesses in their walls and between the transverse arch and omentum; nearly cartilaginous ring at each end of transverse arch. Mucous membrane throughout the large intestines, highly inflamed sloughy or separated; liver, enlarged left lobe adherent to diaphragm; two abscesses in it and two in the right lobe; greater part of substance of the liver degenerated speckled yellow and red. Both lungs adherent to pleura costalis.

Article IV.

Statistical Review of the climates of the principal Stations for European Troops in the Bombay Presidency. By R. H. A. Hunter, Esq. H. M.'s 2d or Queen's Royal.

Presented June, 1841.

The principal stations for European troops, in the Bombay Presidency, are three, the Presidency comprising the fort of Bombay and island of Colaba; Poona; Belgaum; and Deesa.

The first is peculiar for its even high temperature, the thermometer seldom rising above 88° or falling below 76°. From its low insular situation, also, near the level of the sea, its atmosphere is always moist, and particularly during the rainy season, from June to October, when it is almost impossible to keep any thing from rust or mould. The average fall is about seventy inches. During the dry months the chief wind is the sea-breeze, and during the rainy season the south-west monsoon. There is also a land breeze in the morning, from November to May, but it is generally weak, and always soft and tempered. The prevailing diseases at this station, are cholera, diarrhœa, dysentery, bronchitis, hepatic abscess, and a severe kind of gastric and gastro-hepatic, remitting fever, and nearly in the order herein mentioned. From December to April, it is seldom, a European regiment loses more than two or three men. In May and June, cholera is frequent and fatal: also, in Colaba, during the first ten days of July. In May, diarrhœa is also very prevalent. In June and July, true dysentery or colitis. In July and August, bronchitis. In August, hepatic abscess; and in October and beginning of November, gastric remittent fever. Diseases of the heart and aorta are also fatal, as are all the varieties of tubercular disease in the rainy season; and in the cold weather, purpura is not unfrequent, in Colaba, at least.

The comparative mortality by dysentery, cholera and phthisis, exceeds that of any other station, whilst in most other diseases it is more than equal. Belgaum perhaps is an exception with regard to liver, and Deesa with that to fever and coup de soleil.

Our means of proof are limited, but adopting the form in Major Tulloch's statistical reports, we have framed tables 1, 2, and 3, from the mortality in the 2d or Queen's Royal Regiment, during the years 1831, 2, 3, and 6. The first from the official returns, the others cor-

rected from privates notes. A comparison of these may also account for some of the discrepancies alluded to by Major Tulloch, between the reports of the medical officers, and their official returns.

The second, Poona, one thousand eight hundred feet above the level of the sea, and sixty miles or so inland, having high Ghats intervening, is comparatively dry with a much greater range of the thermometer, the extremes being 55° or under and 96° to 98°, and the average fall of rain at least two-thirds less, or about twenty inches.

The third, Belgaum, two degrees further south, two hundred or three hundred feet higher and something nearer to the Ghats, has nearly twice the quantity of rain with a lower and steadier temperature, the annual extremes being about 60° and 92°.

But what constitutes the greatest difference in these two climates, is the cold easterly winds at Belgaum in December and January, and the hot winds at Poona in March and April. During these last at Poona, a soft sea breeze blows all the afternoon at Belgaum bringing this climate to something like that of Mahabuleshwar at this season, allowing for the difference of altitude. It is however more sheltered. In the rains, Belgaum is more boisterous than Poona, and these set in and cease with greater violence, generally with tremendous thunder storms. The rains also begin a month earlier and continue a month or so later, but these consist chiefly of the thunder storms and generally towards evening or in the night.

Between the diseases incident to these climates, there is also a similarity, or rather, deducting the Poona gastric fever of October and November, those of Belgaum are only an exaggeration of the other. Bronchitis is nearly the same in both ; dysentery and rheumatism are worse in Belgaum ; and hepatic abscess rare at Poona, at least so the Queen's Royal found it, is frequent in the cold weather, whether during the dry or rainy season.

Tables 4 and 5 have been framed from the mortality in the Queen's Royal, at these stations, corrected from private notes. The strength may be considered too small to form a just conclusion ; in respect to Belgaum, this is the case, but with regard to Poona, we have been favored through the kindness of Dr. Jackson of H. M. 6th, with an abstract of the annual mortality and strength of that regiment for a period of four years, to which we added the above two, and the five years the Queen's Royal were previously at Poona, which gave an aggregate strength of 9,731, and the annual proportion of deaths, 22.2 per 1000, instead of 21.8, a difference scarcely appreciable.

Deesa, six or eight degrees farther north, just out of the tropic, and about one thousand five hundred feet lower, being very little ele-

vated above the sea, from which it is distant about one hundred and fifty miles, partakes something of the character of both these climates, only of course with a much greater atmospheric pressure. Poona it resembles, in the hot winds and high temperature. It has less rain however than Poona, the average fall being about twelve or fourteen inches, and the annual range of the thermometer greater, the extremes being 50° or under, and 108° to 110°. It chiefly resembles Belgaum in the cold winds during December and January, but with a higher diurnal temperature, that of Belgaum being about 75° as the maximum, that of Deesa 83°.

The principal diseases met with at this station, are fevers of the remitting and well marked intermitting types, gastritis, enteritis, dysentery, cerebritis and coup de soleil. Gastro enteritis and cerebritis are generally the accompaniments of the fevers, the former in the cold, the latter at the close of the hot, season, and dysentery the sequel. True idiopathic colitis is perhaps rare.

The great mortality here is caused by the complicated fevers, of which the most fatal is the gastro-catarrhal (bronchitic) but it is also the most rare. The next is the gastro-enteric ; this is also the most frequent —and least of all, the enteric. In this last which in the cold weather, is frequently of the intermitting type, the acute pain along in front of the right cartilaginous border, the resonance of the part being plus, with tenderness, is often so intense, as to " double them up " as they express it, and even to mask the fever altogether for one or two periods.

Agues prevail chiefly in December and January, remittents at all other seasons. These last are at their acme in August and September towards the close of the rains, and are then accompanied with extreme prostration, and marked tendency to petechiæ and purpura.

The dysentery of the cold weather, enteritis and other inflammatory gastric ailments, may be compared to those at Belgaum at the same season, only at Deesa hepatic complications are rare. Coup de soleil occurs chiefly in the beginning of June. Table 6 has been framed from the mortality in the Queen's Royal at this station for one, rather bad, year, which would have been quite inconclusive had we not through the kindness of Deputy Inspector General Loinsworth and Dr. Jackson, H. M. 6th, obtained abstracts for five full years, also of the 6th and 40th Regiments, which, in all, give an aggregate strength of 4,393, and the annual ratio of mortality 49.6, instead of 55.4, a smaller difference than we had anticipated. We think however this is still too high. Looking over the tables, the difference between Deesa and Poona would seem to be caused solely by fever

and its sequels. We should say therefore, Deesa, fever, 12 (last was an unusual year); sequels, stomach and bowels, 5 ; brain 3 ; total 20. All other diseases including, dysenteric and cerebral affections *not* sequels of fever, 22, the same as Poona or Belgaum, or in all per thousand annually, 42, Deesa has hitherto, as far as I know, enjoyed nearly a complete immunity from epidemic cholera.

On a review of these climates we find that of the Presidency, the most equably warm and moist, and at the same time the most inimical to Europeans from June to December, or when the moisture is excessive, but the most healthy from December to May, or during the dry season. We except in regard to cholera.

Referring to Major Tulloch's statistical reports, the climate which comes nearest to this would appear to be some of the West India islands, or perhaps Demerara and Berbice still nearer, but for their greater moisture. Between any of these, however, and Bombay, it is impossible to draw a just comparison, owing to the very great prevalence of maglignant fevers in the West Indies. The average mortality by this class of diseases being 37 per 1000 of strength, whereas in Bombay it is certainly not more than 5. This particularly applies to the class, " affections of the stomach and bowels," the greater number of these not only in the West Indies, but even here, if we include those associated with hepatic abscess, depending upon the fevers. Indeed when we examine Major Tulloch's tables, — he mentions it himself, we find that but for the 2d, Queen's Royal in 1817 and 18, the average mortality for the twenty years would not have been one half in St. Vincent's and Grenada, and if we deduct these and another out of the way proportion in 1837, possibly from a similar cause, we have the comparative mortality in the former, 10.5 per 1000 of strength, instead of 24.2, and in Grenada 7.8, instead of 16.1 so that it would be difficult to estimate the difference.

We think after all, more may be gained by observation, and as the result of ours, we would say, a high temperature is essential to give the predisposition to dysentery, but that pure uncomplicated colitis, the dysentery which prevails in June and July in the Bombay presidency, is more or less prevalent according to the degree of moisture, exposure to bleak winds, and crowded state of barracks, the latter rendering the body more susceptible. It is perhaps a curious fact that I have only met with one unequivocal case of this dysentery in an officer in ten years, out of an average strength of thirty or upwards, and that was mild and yielded readily to treatment.

The gastro-enteric and hepatic dysenteries we would refer todry

cold, rather ; the predisposition having previously been given also by a high temperature, and fevers of the intermitting and remitting types. They are particularly prevalent on a change of climate from low confined moist situations to high lands and bracing winds, and especially if fever has been prevalent at the former.

Both Fort George and the Town barracks, the Queen's have always found healthy with only one wing, 350 to 400 men, the bombproofs in the latter being given up to the married people. In 1832 the wing in the Town barracks, lost only one man in six months, and that was by cholera. It is true, one or two sent over from thence with chronic disease, died in Colaba, and even in 1833 when we were unusually crowded, though the mortality in the whole regiment amounted to upwards of fifty for the year, only fourteen died out of by far the strongest wing in the four monsoon months, and of these, eleven by cholera. The other three were, fever, one ; dysentery, one; rupture of the heart, one. Cholera, was equally fatal on Colaba. In the Town barracks five of them died in one day. I have no doubt it originated in the hospital, a part of the barracks, merely half matted off from the rest. We were extremely crowded, whereas on Colaba they had abundance of room.

The Town barracks we think from their being dry and sheltered, would always be found the most healthy at the Presidency during the rains, provided an hospital were attached and the ventilation improved, the latter of which could be easily done. The bombproofs below, however, are extremely fatal to children.

Demerara and Berbice in the West Indies, low and sheltered on the main, though fever is there also very prevalent, give a much less comparative mortality by affections of the stomach and bowels than the islands, where the chief object in the selection of a site for barracks has been to get out of the way of the fevers by building on elevated situations, or such at least as have a free exposure to the trade winds.

Diseases of the lungs, consumption particularly, seem to be much under similar influence, and we remember when in Barbadoes in the end of 1829, the 86th Regiment in the old barracks, on an elevated site overlooking the sea, were losing one or two weekly by this class of diseases; whereas the 19th in the new, a little retired into, what was a swamp, when the Queen's Royal were quartered there, were not losing one.

Compare again Demerara and Berbice with the islands and with Bombay, take consumption for instance, Bombay and Colaba, 3.3 ; Demerara and Berbice, 4.4 ; Grenada, 5.2 ; St. Vincent's, 5.5 ; Bar-

badoes, 10.7; or Canada with the Bermudas and England, Canada, 4.5; England, 6.4; Bermudas, 7. or the Cape of Good Hope Frontier with the Cape and Mauritius, Cape Frontier. (inland,) 1.2; Cape, 2.4; Mauritius, 3.1;

If these principles be admitted, the idea of building barracks upon more elevated sites is founded upon error, such situations only tending to increase the mortality by consumption and diseases of the stomach and bowels; whilst under two thousand feet, where they have been tried as in the West Indies, Sierra Leone, &c. they have in no way diminished that by fever, were this last even an object at Bombay.

Belgaum the next in equability of temperature and degree of moisture, and holding a middle rank in the dry season at least, between the climates of the low country and the hill convalescent stations, is the next we shall consider. Here we find in the cold weather it is inferior to Bombay, and particularly with respect to hepatitis, bronchitis, enteritis or dysentery, perhaps, and dyspepsia, the latter of the inflammatory gastric species.

Belgaum we find least healthy when most cold, whether united with drought or moisture, and most healthy when warmest, whether in the dry or rainy season.

Poona, a drier and upon the whole a considerably warmer climate than Belgaum, at all seasons during the day, though in the cold weather the thermometer does perhaps fall a little lower towards morning, is the healthiest of all, and little inferior to England and her North American possessions. The fever we believe to be strictly local. It is that which keeps the proportion of sick comparatively high at this station, though it does not add more than two or three to the annual proportion of deaths.

These are tried climates, but between, we have the hill convalescent station of Mahabuleshwar; would any advantage accrue to the service from having a European cantonment there, (we allude to Panchgunnee,* for Malcolm Pait would not be habitable during four months of the year.) In this we think two questions at least are involved, but what we shall now only consider is, whether the mortality in a European Regiment would be likely, to be diminished by being stationed there, rather than at Poona or Belgaum. We think scarcely; for on looking over the tables, we see no class of fatal diseases, which could be expected to be less prevalent than at either of these last stations, except fever perhaps and diseases of the brain, amount-

* V. Transactions Medical and Physical Society of Bombay, No. III. Page 212.

ing in all to 4 or 5 per 1000 of strength annually, whilst we might expect a considerable increase by liver, consumption and dysentery; for it must be admitted, compared to Poona, Panchgunnee possesses most of the bad properties of Belgaum united to some of those of Bombay. We allude to excessive (comparatively) cold and moisture.

To this may be objected Maroon town in Jamaica, a similar height above the low grounds, and with a similar annual fall of rain, but here we suspect the greater prevalence of malignant fevers is the cause, and after all the difference is not great. Take away that by fever alone, and the comparative mortality would be as 34.4, low grounds to 32.7, Maroon town at an elevation of two thousand feet. Fever on the contrary, is as 101.9 to 15.3 making the total difference as 121, to 32.7. Of course in a climate of this kind, there could be no doubt upon the point, or even, if the mortality at Poona by fever amounted to 10 or 15 annually per 1000 of strength, but when it does only to 2 or 3 we leave a climate which can scarcely be surpassed within the tropics for one, at least, which is untried.

Besides we have reason to believe that Poona is even more healthy than the tables shew, a considerable portion of the mortality being caused by reliefs from the low countries, often not well considered; and at Panchgunnee, the loss by this cause would certainly not be less. Again, the annual fall of rain on the low grounds of Jamaica and of Maroon town are nearly equal, whereas that at Panchgunnee is me than double that at Poona.

But perhaps, the comparison ought rather to be drawn with the coast than with Poona or Belgaum, and then the point would be settled in the affirmative at once, for the mortality on the coast would seem to be at least twice that of the eastern side of the Ghats. At Deesa we have two seasons which exert a malign influence over the health of Europeans, in addition to the rainy season which is universally unhealthy. These are, at the extremes of heat and of cold, both united with excessive drought; the first in the production of apoplexy, cerebritis and coup de soleil; the last in that of enteritis, dysentery, and other gastric ailments. The cause of the fever is no doubt local, depending upon the nature of the soil of the climate. The Eastern Frontier of the Cape of Good Hope would seem, by Major Tulloch's reports, to resemble Deesa much in elevation, temperature, and quantity of rain, yet the mortality by fever there, as indeed by all other classes of disease, is extremely low. When we look to the nature of the soil, however, we find water every where near the surface at Deesa, insomuch that a well might be had in every garden. They are very common, whereas on the Cape Frontier, this is quite the reverse.

Fifty miles from Deesa is mount Aboo, a famous table land, three

thousand or four thousand feet above the level of the sea. Would any advantage be derived from having the military cantonment removed there. Taking the question simply as one of comparative mortality, for we admit there may be others of still greater moment, we have no doubt there would, for though Aboo might possess no advantage over the other hill stations, it certainly would over the plains of Guzerat and Marwar in respect to fever, a disease which at Deesa is either the remote or proximate cause of greater mortality, perhaps, than all others united.

An elevation of two thousand feet grants a very marked immunity from fever, if it does not altogether extinguish it,— witness Maroon town in Jamaica. It would in fact, be a removing from Guzerat to the Deccan, or to those who are acquainted with Ceylon, from the seven Korles to Khandy. It is true, we might expect the mortality by consumption and liver to be considerably increased, say, united, 5 per 1000 annually, or even more the first year of a regiment; but, here much of course would depend upon the care taken in selecting the proper periods for relief. Fever, however, we find is 15 to 20 per 1000 and its sequels 8 to 10 exclusive of invalids; but say 20 in all, from which deduct the estimated increase by liver and consumption, and we have a saving of at least 15 lives annually per 1000 of strength. This we conceive to be a very moderate calculation.

We might now close, were it not that another question presents it self, that is, whether the constitution of troops quartered on the hills or on the coast would be in the most favourable state for undergoing a campaign in the low country. This is a point which experience only, perhaps, can determine, but as the result of several changes up and down within the last ten years, we have no hesitation in saying the former, for we have never witnessed bad effects from a sudden change from the high to the low country, or from a colder to a warmer climate, except once, from Beloochistan into Cutch Gundava, in November 1839, and that was an extreme case, whereas, we have almost invariably, from a warmer to a colder. The reason perhaps is, that habit enables them better to resist cold, the exciting cause of liver and dysentery, the diseases by which the increased mortality is created, whilst at the same time the lower temperature of the hills has rendered them less susceptible. The mortality by consumption might possibly be increased, but for pneumonia and pleurisy, the degree of cold within the tropics, seems scarcely sufficient to give the predisposition; at least, we have never witnessed an unequivocal case of either originating south of the Indus, and even in Affghanistam we never met with pneumonia, till towards the end of the year, when the thermometer had begun to fall below the freezing point

In the following conclusions then, we think we may sum up. 1st. That the most healthy stations for European troops are the table lands, stretching east from the Ghats, sufficiently removed from these to reduce the annual fall of rain to thirty inches or under, and yet not so far as to get into the fever districts, that the second are the Hill stations, and last the low country coast.

2d. That the stations of Poona and Belgaum, in the Bombay Presidency, are in point of locality every thing that can be desired, and therefore that all European troops, not elsewhere required, should be cantoned at one or other of these, or some similar intermediate point, where with due care in making the reliefs from the low countries, the mortality would little exceed that of England.

3d. That only what are absolutely required should be kept at the Presidency, and these quartered during the rains in the Town Barracks, the ventilation of these being improved, and a proper hospital attached, and in the dry weather on the Esplanade or Colaba. The last is the best, and.

4th. That if the North Western Frontier station could be removed to Aboo, leaving at least only what are absolutely wanted at Deesa, there would be a saving to the service of 15 lives annually per 1,000.

Comparative Mortality, in H. M. 2nd or Queen's Royal Regiment in the island of Colaba and Fort of Bombay, during the years 1831, 2 *and* 3, *exclusive of Detachments; and agregate average strength for the three years,* 2389.

Average Age, 27. Average period in India, 6 years.

No. 1. By Official Returns.				No. 2. Corrected by private notes.			
Diseases.	Total Died.	Per 1000	Class per 1000	Diseases.	Total Died.	Per 1000	Class per 1000.
Pleuritis.*	1	.4		Pleuritis	..	..	
Consumption . .	12	5.	6.6	Consumption . . .	8	3.3	3.7
Chronic Catarrh . .	2	.8		Pulmonary Apoplexy	1	.4	
Asthma	1	.4		Rupture of Heart .	1	.4	
Cardiac Disease . .	2	.8	1.2	Cardiac Disease . .	3	1.2	2.
Thoracic Aneurism.	1	.2		Thoracic Aneurism.	1	.4	
Total Thoracic .	..	..	7.8	Total Thoracic .	..	..	5.7
Fevers	7	2.9	2.9	Fevers	9	3.7	3.7
Hepatic	5	2.1	2.1	Hepatic	3	1.2	1.2
Stomach & Bowels	20	8.2	8.2	Stomach & Bowels	18	7.5	7.5
Brain	8	3.2	3.2	Brain	9	3.7	3.7
Cholera	37	15.5	15.5	Cholera	37	15.5	15.5
Other Diseases . . .	1	.4	.4	Other Diseases † . .	7	3.2	3.2
Total per 1000	"	"	40. 1	Total per 1000	"	"	40. 5

* This was a mistake. — The man died in the European General Hospital, of the effects of exposure to the sun during the Parsee riot; and Pleuritis was read for Phrenitis.

† "Other Diseases" — Of these two were Cachexia from confinement in cells, rheumatism &c. Phlebitis, one; Purpura, one; Splenitis, one; (nothing found on dissection); and one or two on the arrival of the Regiment at Poona in December 1833, neither of whom I saw, not having then been doing Hospital duty.

N. B. Two died in Barracks, of "Ruptured Blood vessel," not included.

No. 3. — Comparative Mortality, in H. H. 2nd or Queen's Royal Regiment, from 1st June to 31st December, 1836, the first five months in Poona, the last seven in Fort George, Bombay. Corrected by private Notes.

Average Strength, 719. Average Age 31. Period in India, 10½.

Diseases.	Total Died.	Per 1000	Class per 1000.
Pleurisy*	1	1.3	4.1
Consumption . . .	2	2.8	
Cardiac Disease . .	4	5.5	6.8
Thoracic Aneurism.	1	1.3	
Total Thoracic .	..	..	10.9
Fevers	1	1.3	1.3
Hepatic	4†	5.5	5.5
Stomach & Bowels.	5‡	6.8	6.8
Cholera	1	1.3	1.3
Other Diseases . .	1	1.3	1.3
Total per 1000.	"	"	27.1

No. 4. — Comparative Mortality, in H. M. 2nd or Queen's Royal Regiment, at Poona, during the years 1834 and 35.

Aggregate Strength, 1395. Average Age, 30. Period in India, 9.

Diseases.	Total Died.	Per 1000	Class per 1000.
Inflammation of lungs (questionable this)	1	.7	2.8
Consumption . . .	3	2.1	
Cardiac Disease . .	4	2.8	4.2
Thoracic Aneurism.	2	1.4	
Total Thoracic .	..	..	7.
Abdominal Aneurism	1	.7	.7
Fevers	3	2.1	2.1
Eruptive Fevers.	2	1.4	1.4
Hepatic	4	2.8	2.8
Stomach & Bowels.	5	3.6	3.6
Brains	3	2.1	2.1
Other Diseases . .	3	2.1	2.1
Total per 1000.	"	"	21.8

* Chronic, contracted off the Cape of Good Hope.

† Except one, sequels of fever — ‡ One or two, sequels of fever.

No. 5. — Comparative Mortality in H. M. 2nd or Queen's Royal Regiment at Belgaum during the years 1837 *and* 38.

Aggregate strength 1399. Average Age 32. Period in India 13.

Diseases.	Total Died	Per 1000	Class per 1000
Consumption.	2	1.9	1.9
Cardiac Disease . . .	2	1.9	3.9
Thoracic Aneurism. .	2	1 9	
Total Thoracic . .	"	"	5.7
Abdominal Aneurism.	1	.9	.9
Fevers	1	.9	.9
Hepatic *	11	10.4	10.4
Stomach and Bowels .	4	3.8	3.8
Cholera	1	.9	.9
Other Diseases . . .	1	.9	.9
Total per 1000	"	"	23.5

No. 6. — Comparative Mortality, in H. M. 2nd, or Queen's Royal Regiment at Deesa, from 1*st April*, 1840, *to* 31*st March*, 1841.

Corrected.

Average strength, 882. Average Age, 26 years. Period in India, 4½ years †

Diseases.	Total. Died	Per 1000	Class per 1000
Pulmonary Diseases. .	2	2.2	2.2
Cardiac and Aortic . .	3	3.4	3.4
Total Thoracic . .	"	"	5.6
Fevers	18	20.4	20.4
Hepatic	3	3.4	3.4
Stomach and Bowels .	13	14.7	14.7
Brain	6	6.8	6.8
Other Diseases . . .	4	4.5	4.5
Total per 1000	"	"	55.4

* Most of these are under "Dysentery," in the returns, and perhaps with equal propriety (Hepatic Abscess with Dysentery), Three or four are under "Fevers."

† 500 Recruits under 2 years in India.

Article V.

On the Jungle fever of Candeish. Extracted from the annual report of the 15th Regiment N. I. for the year, 1840.

By A. Graham, Esq.

Presented by the Medical Board, April 1841.

General Observations. — In my last year's report, I entered, at some length, into the causes and effects of *Jungle Fever*, and I then adduced some well authenticated statements of fatal cases of this disease, in order to show the impropriety of exposing troops to the influence of certain noxious agents present in the jungles at a certain season, where such exposure is not absolutely required by the exigences of the service.

The observations made by Lieut. Colonel, now Major General Briggs, during the years 1815 and 1825, and also those made by myself at a later period, incontestably prove that during the months of October and November, (particularly October) when vegetation is extensively decayed and water has become stagnant, the disease is both most prevalent and most malignant, — so malignant, indeed, that in the comparatively few instances from which death does not immediately result, there remains so much functional disturbance and perhaps, so many organic changes, as to render the soldier unfit for the due performance of his duty.

I am under the painful necessity of again alluding to this subject in reporting upon the medical state of the 15th Regiment N. I. during the last twelve months, as during the latter part of this period I have had, under my care, three sepoys labouring under visceral disease in consequence of fever contracted in October last, when these sepoys and a naique (all now in hospital) were sent in charge of a deserter through the jungles which lie between Dywell and Soneghur, on the road leading from Malligaum to Surat. These are the same jungles through which, in November 1839, only a year before this occurrence, a naique and six sepoys were sent in charge of horses from Malligaum to Surat. Of this party all were seized with fever; one poor man became deranged, and wandering about the jungle, soon died, and of the five who lived to reach camp, only three recovered, the two remaining were long in overcoming the sequelæ of the fever.

Colonel Briggs states (and his statement which, I formerly quoted, I now wish to bring again to the notice of the Medical Board) that in the same forest, in the year 1819, a detachment of fifty sepoys and an European officer passed to Surat in September and returned in October. The whole of the sepoys were affected with fever and the European officer died. In the following year sixty men performed the same duty at the same season, nearly all of whom died. The Officer escaped, after a lingering illness, with his life.

At the same time, also, a detachment of H. M. 67th. Foot, consisting of five officers and twenty-two privates, marched from Surat to Candeish, of whom one officer and a private only survived; the whole of the rest died within a fortnight of their arrival at Head Quarters of the Regiment. All the Europeans who have passed by this route, within the last nine years, in the unhealthy months, have invariably died. The disease which affects them is a violent bilious remittent which usually carries off the patient in a few days, in spite of the earliest and most skilful medical aid.

It is much to be lamented that these remarkable facts, although officially reported to Government by Colonel Briggs, should not have led to the prevention of subsequent calamities of a similar nature. In 1830, four hundred native troops, marched from Malligaum against some tribes occupying the neighbouring hilly country, after a compaign of between two and three months, during the most unhealthy season, only one hundred and twenty out of the four hundred marched back into camp; of five European officers, one died, three went away sick, one to England, and two, to the Neilgherris. During the campaign many horses got distinct hot and cold fits of fever, and ten out of about a hundred died.

These facts have been communicated to me, by Captain Douglas Graham, who was one of the officers employed on this service. The Assistant Collector of Candeish has mentioned to me, that on one occasion the villagers sent in all the muskets of the Kookurmoonda detachment, the whole of the party having perished in consequence of fever.

To enumerate the many fatal and lamentable cases, hitherto only locally known, in which this disease has occurred, would fill a long paper on this subject, and as my present report is of a general nature, I must content myself with expressions of my deep sense of the vast importance to the service and to humanity, of investigating the circumstances, under which jungle fever occurs, so as, to ascertain its causes and to enable us, if not to withhold the sepoys from these causes of fever, at least, to modify their effects.

In January of the last year, six hunderd recruits for general service, traversed the last jungle alluded to by Colonel Briggs, betwixt Malwa and Candeish; several officers had passed through the same tract, at the same time, with impunity. These recruits slept on the ground, and after marching during the heat of the day, were exposed to the intense cold of the night; several of them, however, had warm quilted cotton jackets, and thus escaped fever or had it only slightly. On their arrival at Malligaum, nearly sixty were admitted into hospital; some of these poor men had suffered for several days and were beyond the reach of medical aid when they arrived; only seven of the number died. The complication was chiefly bronchial of a very intense character. The bronchial membrane had become swollen, and the air cells filled with secretion: the blood was thus deprived of its due proportion of oxygen, and the effects of unoxygenated blood were apparent upon the brain. One man died delirious on the day of his arrival without our being able to give him any medicine. In the worst cases, scarcely any pulsation at the wrist could be discovered, the surface was cold, dry and rough, the function of respiration was much impeded, the whole of the muscles, attached to the thorax, being called into action to expand the chest without the power to effect it, and yet there was no local pain.

In the progress of the disease, the air cells were ruptured, and their connecting tissues, and thence, the air without rupturing the bronchial lining escaped by the root of the lungs to the cellular membrane of the thorax, forming emphysema of the neck, face and around the clavicles.

Hœmorrhages of a dark corrupted blood occasionally took place from the nose and throat. In one or two cases deafness occurred. Where disease of the cerebrum was superinduced, the tongue was rough and dry, and broken into furrows: when the abdominal complication prevailed it was smooth, dry and glossy.

The form of jungle fever in October and November, seems to be bilious intermittent and remittent, owing, no doubt, to the great congestions which take place in the splenic and portal circulation, again, as the cold season advances and becomes more intense, the jungle fever assumes the character of gastro-enteritis, and bronchitis, and eventually, as the cerebrum becomes affected a typhoid fever is superinduced. In these jungles, in October and November the exhalation from decaying vegetation is very extensive, and putrid matter fills the waters.

On the tanks, and wells and nearly stagnant rivers, a dark substance like floating oil abounds. It has also been stated that a poi-

sonous vegetable exists on the banks of some of the streams, and, after the rains, impregnates the river with its noxious qualities. In all the waters of Candeish the natives are known to steep hemp after the rainy season; putrifaction and animalculæ must therefore abound in this essential necessary of life, no doubt proving a great cause of disease. Animalculæ alone are said by Dr. Copeland, when received into the circulation, to cause fever. Majendie and Dr. Gaspard state, that both putrescent animal and vegetable matters, when injected into the blood vessels of the inferior animals, occasion phenomena strikingly analogous to those exhibited on the human subject labouring under malignant fever. These putrid substances introduced under the skin, as well as into the blood, have been known to produce symptoms similar to those of typhus fever, and after death, the blood is remarkably altered. It is nearly altogether fluid and is of a very dark colour and exudes from the mucous surfaces.

The following official letter from the Deputy Post Master Hoosingabad, to the Secretary of Customs and Post Office Committee, dated 17th May, 1837, points out the bad effects of corrupted water on the human constitution.

"For the benefit of the Police Chokees and travellers, I had wells made at all the stages to Baitool which precaution has quite put a stop to jungle fever which used to be contracted by the Najeems, dawkmen, travellers, and people who resided there."

In a native regimental hospital, for the most part, the different diseases are so few, and these vary so little in their forms, that a single description which shall embrace the usual typical characters of any particular disease, will generally be applicable to all the cases in which that disease occurs.

I have found this to be so much the case, that in my annual reports, I have experienced great difficulty in avoiding repetition, and for want of more original matter, have been obliged from time to time to confine myself to a mere reference to my former views and treatment, according as opportunities have enabled me to test their accuracy and success.

Article VI.

Observations on the Dracunculus as it prevailed in the 22d Regiment, N. I. from April till September, 1841. By D. Grierson, Esq. M. D.

Presented by the Medical Board, September, 1841.

The first case of dracunculus, the only one for that month, was admitted in February. The admissions for the successive months were as follows. March 27; April 184; May 79; June 34; July 13; and August 5; while the discharges were March 3; April 29; May 49; June 42; July 64; and August 87. One man died and 68; remain in hospital.

The number of cases treated including a few re-admissions (the exact number is 16, has been 343. The number of worms extracted has been 700, averaging two and a small fraction to each man. Of the whole number treated there have been, having worms on the body 5; upper extremities 29; lower extremities 335. No case of worm on the head has been observed.

The cases may again, with respect to the worms, be divided into uni-numeral and multi-numeral. Of the former there have been 169, of the latter 174; of the former the distribution was as follows: — body 2; upper extremity 5; lower ditto 162. The multi-numerals consisted with few exceptions (the exact number is six) of a plurality of worms on the lower extremities.

Frequently three, four or five worms, more rarely six, have coexisted or succeeded each other in the same individual. Two cases, one of eight, the other of ten, which is the highest, have occurred.

The complaint has presented its usual characters. Often general excitement with extreme pruritus and a universal erythema, or eruption somewhat resembling the wheals of urticaria, has proved a premonitory symptom. A sudden puffy swelling with little pain has often served the same purpose, sometimes unusual itching has led to the discovery of the worm lying cord-like in the subcutaneous cellular membrane. Most frequently the appearance of a bulla attended with itching, or not, has given intimation of the disease.

In the first case a brisk purgative has relieved the distressing feeling; the eruption disappears; and in two or three days the bulla will indicate the seat of the animal. In the second case the purgative is also needed, and lead lotion has been used with advantage. In any case when the bulla appears, the practice I have followed is to remove the elevated cuticle; then to clear away any inspissated mucus that may adhere to the base. In doing this, it often happens that a little diaphanous bag containing limpid fluid is seen, and if this be pulled upon, it will be found to be the end of a small hair-like tube which may be taken out to the length of many inches. I notice this, because it has doubtless given rise to the idea that worms exist of the size of a horse hair, — which is erroneous.

The next thing I have done, is to clip away, without attempting its extraction which is injurious, close by the surface, this inner organ or apparatus of the animal, and when the part is dried, rub it well with lunar caustic. The part being left exposed, a hard dry covering is afforded, which after a few days, when the new cuticle has formed under it, has been detached; with this advantage, all previous irritation is removed, and instead of a large tender surface continually liable to suffer from contact with the worm, the orifice alone by which the worm is to be extracted remains.

In detaching the dry slough formed by the caustic, it usually happens that the end of the worm has adhered, or if not, a little blackened point indicates the desired object. The worm being seized with fine forceps, light traction applied in various directions till the axis of the worm is discovered, has been used. So long as the worm yields, this has been continued, but when resistance is made, — suspended, — to be renewed again after twenty-four hours; and I should prefer no way of disposing of the part extracted, to that, of coiling the worm on itself and covering it with a piece of oiled-silk; but in the absence of this useful material it has been wound on a flock of cotton (care being taken to renew it frequently) and covered with some succulent leaf.

Many a worm has thus been got rid of with very little inconvenience. But in many, perhaps in most cases, by carelessness, by accident, or despite of every prudence and caution, the worm will break. In such cases the caustic has been freely applied to the orifice, and I believe the dilation by the scalpel of the orifice to admit of free application of the caustic, would be an improvement on this practice. The end of the worm may again protrude by the orifice (rendered more probable by dilation) which is most desirable; or diffuse inflammation of the limb with effusion of serum, or blood, causing great swelling may ensue. In this case I have been slow to practice the

free crucial incisions recommended by some. Active purgation and cold lotion will in most cases answer every indication. Cases where the constitution may be seriously involved, or joints may threaten to be injuriously affected, would of course justify more active, provided they be more certain, means of relief; but it is to be borne in mind, that the inflammation is not strictly phlegmonous, but more of that description following the bite or sting of venomous insects or reptiles, where the tendency is so much more to effusion than suppuration.

A third event may follow the disappearance of the broken end of the worm. The irritation may produce true phlegmonous inflammation, leading to the formation of laudable pus without much affection of the limb generally, or this effect may take place after the diffuse swelling, already alluded to, has gone off. And here the acknowledged and good principle of surgery as to the early opening of abscesses has been departed from. The abscess is the result of the effort of nature to expel the offending foreign body, and early interference with it may defeat this object. But, let the abscess be well matured, and the probability is the worm will be detached, in part or in whole, so that, an opening being made, it may at once escape or be soon after extracted. The pain of abscesses, which involving as they often do parts which when inflamed are exceedingly painful, has been moderated by leeches, poultices and anodynes.

It sometimes happens that inflammation follows the entire extraction of the worm; and the ulcers succeeding the extraction of the worm, whether formed by abscesses or otherwise, often remain very long and resist a great variety of treatment. In such cases constitutional treatment sometimes effects a rapid improvement.

Such have been my views and the practice they have led to, during this tedious time of harassment and suffering, and I know not that I could do better than adhere to them on any similar future occasion.

I have cut down upon and extracted the worm in whole or in part, but for various reasons, I would neither follow this practice nor recommend it to others. I regard attempts to get rid of the worm quickly by medicines, whether internal or local, with no more favour than such attempts would merit, were they directed to the removal of any foreign substance whatever, lodged by whatever means in the body. Several pretenders to specifics were encouraged by being allowed to select their own time, treatment and patients, but their en-
's were futile.

nothing of any value to state on the obscure subjects of
nd prophylaxis.

I have noticed one erroneous idea regarding the animal. The only other which I shall now mention concerns its length. I have seen nothing to countenance the assertion that the creature attains the length of twelve feet. To appearance, all I have seen, have been between one and a half and three feet, and of twenty preserved entire which I now have, the average length is twenty-three six-eighths inches ; the longest and shortest being respectively thirty-one and eighteen inches.

Article VII.

* *Notes sur la plaie du Yemen, offrant l'analyse d'une monographie de cette Maladie.* Par M. Le Lieutenant Colonel Dr. Chedufay, Medecin Inspecteur des armées d'Arabie.

† Presented December, 1840.

I. Parmi les maladies qui attaquent les habitans du littoral de la mer rouge il en est une qui semble ne pouvoir exister solitaire, mais bien aggraver une premiere maladie, lorsque celle ci offre toutes les conditions voulues pour la recevoir.

II. Cette maladie consécutive à une maladie primitive est la plaie

* A Messieurs les Membres de l'Academie de Medecine de Bombay.

Messieurs, — J'ai l'honneur de vous adresser par le bienveillant intermediare de M. le Dr. Bloxham un memoire intitulé "Notes sur la plaie du Yemen," offrant l'analyse d'une monographie de cette maladie.

L'anatomie pathologique et la therapeutique de la plaie du Yemen, sont encore si peu connues, qu'il ma paru que vous pourriez accueillir, avec quelque intérét des renseignmens, propres à conduire a l'appreciation des symptoms des lésions, et du traitement de cette cruelle maladie.

Mon but aura été atteint, si en effet, ces resultats peuvent servir de base à des recherches ulterieurs, plus heureuses, et plus completes

J'ai l'honneur de vous,
saluer Messieurs avec
consideration votre Serviteur
Dr. Chedufay.

Gedda, ce 11, Aout, 1840.

† *Note by the Secretary.* — This paper was presented to the Society by C. R. O. Bloxham, Esquire, Assistant Surgeon, Bombay Establishment, who after having seen the intractable nature of this disease at Aden, proceeded on duty in the H. C. Brig Euphrates to Jedda where in an hospital established by H. H. the Pacha of Egypt under the charge of M. le Dr. Chedufay, Dr. Bloxham had an opportunity, during a period of three months, of observing the treatment pursued in that Institution. Dr. Bloxham struck with the success of the treatment, requested M. le Dr. Chedufay to favor him with a copy of the report made by him to the Institute of Medicine in Paris — with this request, M. le Dr. Chedufay obligingly complied, and at the same time presented two well executed drawings, of the ulcer in different stages. It is with regret that the Committee have found themselves unable to publish these drawings.

du Yemen nommée par les habitans du pays Guiarh Yéménî ; jài conservé cette dénomination.

III. Propositions sur la maladie connue sous le nom de plaie du Yemen.

1. La plaie du Yemen n'est pas connue ; on la crue jusqu'ici une maladie toute locale ; elle tient toujours à un vice général, dont cette plaie n'est qu'un symptome, et qui revêt les formes adynamiques.

2. Sous le rapport de la frequence, on remarque que cette affection se présente dans l'ordre suivant.

1. Chez les Negres venant du Sennâr ou des contreés voisines, comme le Kordofan, le Darfour, &c. 2°. Chez les indigénes de la classe misérable, et les Indiens malheureux. 3°. Chez les soldats, de Syrie nouvellement arrivés et soumis à de grandes fatigues, ou qui ont souffert des maladies du pays, et des intemperies d'un climat chaud, si different du leur. 4°. Chez les Egyptiens transportés dans l'Arabie ; chex eux elle est rare, et a besoin, pour se développer, qu'une des causes générales qui précédent son développement soi beaucoup plus prononcée que chez les individus des trois autres catégories. 5°. Les Officiers Turcs, en assez grand nombre dans les regimens, n'ont presenté que cinq a six cas dans l'espace de sept ans. 6°. Les Turcs attachés à la cavalerie, ou aux regimens irréguliers ont succombé en assez grand nombre à la suite de cette plaie, mais toujours il y'avoit, en avant, une maladie primitive, et tous appartenaient à la classe malheureuse, ainsi que quelques marins Indiens de la marine de la compagnie et marchands. 7°. Les Europeans n'en'ont jamais été atteints quelles que soient les écorchures, les plaies, ou autres solutions de continuité de la peau des extremités inférieures.

IV. La plaie n'est ni épidémique, ni contagieuse ; ce dernier fait resulte de l'expérience directe d'inoculation que jái faite sur plusieurs individus.

V. La plaie ne se rencontre que depuis Yambo à environ 24° de Lat. N. jusqu' Aden un peu moins de 13° L. N.; elle est de plus en plus commune selon qu'on s'approche du littoral, plus encore dans les iles ; ne se remarque que rarement dans l'interieur et toujours dans ce cas, elle est bénigne ; cependant, au bas des montagnes du Hedjaz ou nos troupes campaient, elle a fait beaucoup de ravages l'année dernière ; cette année, vu de certaines circonstances atmospheriques, elle a parue pour la premiére fois sur les montagnes du haut Hedjaz ou elle etait inconnue.

VI. Le siege le plus commun de cette plaie est à Confouda pays trés bas, et au dessous du niveau de la mer ; à Moka et dans l'ile de Kamran voisine de ces pays.

VII. Présque constamment, la plaie se montre aux extremités inferieures, depuis le genou jusqu'au bout des orteils, particuliérement sur le coté interne du membre et le dos du pied.

VIII. Elle est toujours liée, comme nons l'avons dit plus haut, à un vice général de l'economie ; car ce n'est que dans des cas exceptionnels qu'il n'en existe aucune trace. Ces vices généraux, sans lesquels la plaie ne fait que très peu de ravages, et qui, d'après cela, semble être la cause essentielle de la maladie, sont d'apres leurs ordres de fréquence. 1°. La diathèse scorbutique arrivée à un dégré tel, que par des symptomes extérieurs, et souvent mèmes tres marqués il est impossible de la méconnoitre ; en général la plaie offre les caractères des plaies dites scorbutiques. 2°. L'adynamie suite d'une maladie chronique, ou d'une aigue prolongée au dela du 15me ou 25me jour ; période qui suffit dans cette contrée pour qu'il existe une adynamie très profonde, pendant laquelle se montre fréquemment l'œdematie des membres inferieurs, à laquelle il faut reconnaitre une grande influence pour le developpement de la plaie. 3°. La nostalgie, les chagrins, les privations, la mauvaise nourriture, les fatigues jointes au changement de climat, toutes causes de nature adynamique, sont autant de causes prédisposantes, qui n'attendent plus que la cause occasionelle.

IX. Cette cause occasionelle est toujours une égratigneure, ou une écorchure resultat de la chaussure, du prurit, d'un choc, &c. il se montre d'abord un petit bouton qui une fois écorché donne rapidement naissance à la plaie ; elle est produite trés souvent par la piqûre d'un petit insecte qui vit sur le chameau, cette derniere determine un fort prurit, la piqûre s'engorge et la plaie paroit.

X. Celle ci une fois déclarée, et la maladie n'etant pas encore parvenue à cette époque ou l'adynamie est à son dernier periode, le changement de lieu en s'eloignant du littoral, est un des meilleurs moyens de la modifier favorablement.

XI. Sous le rapport du diagnostic, dans le cas ou les causes générales existent (sans lesquelles la maladie est benigne) ou peut noter les trois dégrés suivants. 1° dègré : la petite plaie résultant du bouton, ou de l'écorchure produite par la chaussure, loin de se cicatriser, présente au bout de deux ou trois jours, de l'inflammation à son pourtour, avec gonflement, tandis qu'au centre on remàrque une petite escarre ; aprés deux ou trois jours il se forme un second cercle inflammatoire, tandis, que le premier passe à l'état gangreneux ; la premiere escarre etant tombée laisse à sa place une dépréssion par perte de substance, qui augmente rapidement jusqu'a acquerir la grandeur d'une piéce de cinq francs. Jusqu'à la, la peau seule et le tissu

cellulaire sous-cutané ont été attaqués ; arrivée à cet état la plaie se nettoie, sa surface est rougeâtre, ses bords relevés et renversés en dehors ; il existe des douleurs limitées aux environs de la plaie : tel est le premier degré de la maladie.

2°. degrée En cinq ou six jours la plaie s'agrandit avec rapidité, au point d'egaler la surface palmaire ; pendant ce temps elle ne borne plus son action à la partie dermoide elle s'étend aussi en profondeur, attaque les muscles et les tendons ; elle n'est plus uniforme, elle creuse inégalement, presente des pilliers des colonnes charnues, entre les quelles on remarque, des points gangreneux ou grisâtres qui forment des nouvelles escarres ; les bords continuent à se renverser en-dehors, deviennent de plus en plus relévés, de plus en plus douloureux ; autour on remarque un cercle grisâtre, qui se trouve bientôt envahi et confondu dans les nouveaux progrès de l'ulcére. Souvent dans dix à douze heures le fongus recouvre les trois quarts de la plaie, et aprés avoir disparu, reparoit de nouveau au bout de dix à quinze jours. Cet accident, qui arrive assez souvent, retarde la guerison surtout lors quél revient à plusieurs reprises sur le même individu. Il n'est pas rare alors de voir, la plaie se cicatriser malgré la destruction des muscles et des tendons ; mais au moment ou la cicatrice semble complette et durable, à la suite d'un changement dans la direction des vents, ou de toute autre cause externe ou interne cette large cicatrice se parsème de points enfoncés gangreneux qui rongent cette derniére, et se rapprochent. Dans deux ou trois jours la plaie est dans son état primitif ; souvent dans, 24 heures, la partie cicatrisée tombe en lambeaux comme on l'observe dans les parties putrifieés. Dans ce degré les douleurs insupportables ne sont plus bornés au pourtour de la plaie, maìs elles s'etendent le long des muscles, des tendons, des os, et s'opposent par leur continuité au moindre repos. Dans ce degré quoique l'os ne soit pas encore à découvert, il est déja malade ; en effet, si l'on vient à le mettre à nu, soit en pressant sur le tissu ramolli qui le recouvre soit en faisant une petite incision, on trouve le perioste detruit et l'os atteint de carie. Souvent l'os necrosé se détache et suit lui meme les progrés de la guerison ; dans ce degré l'homme reste prèsque toujours estropié.

3°- degré ; la plaie continue de s'agrandir ; sa surface et sa profondeur finit par mettre à nu les articulations et les os ; alors, de l'état de carie, l'os passe à celui de nécrose. Si le malade resiste encore aux progrés toujours croissants de la maladie, les parties necrosées, s'exfolient, et au pied par exemple, les phalanges se detachent, ainsi que les os du metatarse ; la plaie pendant, tout ce

temps, en totalité ou en partie, est recouverte d'escarres gangreneuses humides ou séches.

XII. Au premier degré l'ecoulement qui a lieu par la plaie, est une suppuration sanguinolente, qui en séjournant sur les bords, determine sur les points avec lesquels elle est en contact, une inflammation manifeste ; elle tache le linge d'une maniére indélébile, mais sans le detruire ; mais dans les deux autres il y a en outre destruction du tissu ; la plaie bien essuyée conserve un aspect blanchâtre ; dans le cas de guerison, la suppuration reprend les caractéres ordinaires des plaies qui se cicatrisent dans le 2me. degré, la suppuration sanguinolente fait place à une suppuration grisâtre, et de plus à une sérosite très abondante; les points gangreneux donnent la suppuration, dont les caractéres et l'odeur sont connus. Dans le 3me. degré il y a toujours gangréne et nécrose ; la suppuration est celle de ces deux états avec la suppuration du premier degré, qui même existe seule et en petite quantité dans le cas de gangréne séche ; dans les trois cas l'odeur de la matière qui s'en ecoule, outre celle particuliere à la gangréne, a quelque chose qui la rend repous sante.

XIII. Dans tous les cas, et à tous les degrés à moins de diarrhée colliquative ou de dyssenterie le pouls est toujours normal, l'appetit très devellopé, les digestions parfaites, la peau seche sans sueur, 'et decolorée, malgré les douleurs atroces et l'insomnie du malade.

XIV. La marche de la maladíe est caractérisée par le passage successif d'un degré á un autre. La durée de chacun d'eux varie suivant l'intensite de la maladie prédisposante dont nous avons parlè, ou de la disposition plus ou moins forte á la contracter des divers sujets indiqués plus haut (no. III). ainsi une plaie peut ne mettre que quinze jours pour arriver au troisième degrè, ou au contraire mettre plusieurs années.

XV. La durée est très variable, et quelque soit la terminaison, soit par la guérison, soit par la mort, celle ci peut, d'après les memes motifs que nous venons d'énoncer pour la marche, etre plus on moins eloignée du point d'origine.

XVI. La plaie du Yémén peut exister seule, á un seul membre, etre multiplieé, ou même attáquer les deux membres á la fois.

XVII. Le pronostic varie également selon la classe atteinte (voir les propositions), la gravité de la maladie prédisposante, le degré de l'affection locale, le temps ecoulé depuis l'invasion. Cependant on peut dire que dans le 3me. degré, la guerison quoique possible est très rare, et laisse toujours les personnes estropiées par suite de la destruction des muscles, des tendons et de portions d'os ; que dans

le 2me. degré la majeure partie guerissent en conservant d'enormes cicatrices, qui génent plus ou moins le mouvement des membres; que dans le 1re. degré la plaie très limitée ne laisse aucune infirmité.

XVIII. La récidive est assez fréquente quelques jours apres la cicatrisation complette; mais la fréquence varie en raison directe du degré plus avancé, auquel etait parvenue la maladie; elle n'arrive guère que dans le 2me. ou 3me. degré et peut se montrer huit à dix fois de suite; quand elle a lieu dans le 1re. degré, la plaie revient rarement sur le poínt cicatrisé.

XIX. Sous le rapport de sa nature, la maladie connue sous le nom de plaie du Yémén n'est donc le plus souvent qu'un symptôme d'une maladie générale, comme nous l'avons indiqué dans l'article des causes; ce n'est pas donc, comme on l'avoit cru, une maladie toute locale, mais ce n'est pas non plus le symptôme d'une seule diathése générale, comme les plaies scrophuleuses, vénériennes, qui toutes ont pour cause assignée la diathese du meme nom; ici au contraire la cause générale varie, et a le plus souvent besoin du concours d'une cause occasionelle, quoique celle ci puisse manquer; cependant la cause prédisposante est toujours de nature adynamique.

XX. Le traitement convenable de cette maladie découle nécessairement de la conclusion que nous venons de tirer de la nature de la maladie; il ne devra pas étre seulement local mais bien général, et celúi ci devra être essentiellementt tonique, la plaie considereé comme symptôme exigeant seulement le traitement de tout ulcére ataxique avec, ou sans gangréne. Jusqu'á ce dernier temps, lorsque l'on considerait la maladie comme toute locale, les traitemens locaux mèmes toniques, mais non combinés avec le traitement tonique général, ont en partie èchoués; tels ont étés les caustiques, les cautéres actuels, employés pour faire disparoitre les points gangréneux, le sulfate de cuivre, les solutions de chaux, les chlorures de chaux, le quinquine, &c. tous cés moyens, le plus souvent ne faisaient qu' aggraver la maladie et les douleurs. Le contact de l'air est toujours funeste; de la, l'habitude des indígènes, lorsquíls ne peuvent guerir, de la recouvrir avec des plaques métalliques, et de ne la panser que tous les deux ou trois jours.

Pour résumer tout ce qui a rapport au traitement, nous dirons qú'il faut employer un traitement général qui sera celui du scorbut, de l'adynamie et en ayant recours aux toniques usités dans les pays chauds. Surtout au moyen d'une bonne nourriture, de changer de lieu le malade en s'éloignant des bords de la mer.

Enfin dans le 3me. degré; si cette maladie se termine par la

mort, quatre on cinq jours avant, on voit la surface de la plaie complettement mortifieé; les tissus se décomposent et tombent par petits morceaux; la diarrhée colliquative si elle n'existait déja, vient aggraver l'etat du malade, qui succombe accablé par les douleurs les plus atroces. Dans le cas contraire; lorsqu'on se sera décidé à pratiquer l'amputation du membre malade, lorsque toute fois, au moyen du traitement general, on a mis le malade dans de bonnes conditions, et qu'aucune contre-indication ne s'y oppose, on a trouvé que le nombre des succés a été superieur à celui des revers; ainsi sur neufs cas recents il n'y a eu qu'un cas de mort survenu au 40me. jour, aprés l'operation, et par suite de la dyssenterie. On peut quelque fois, lorsque le sujet est jeune, tenter l'operation malgré que toutes les conditions requises, n'existent pas. J'ai observe assez souvent que l'amputation faisait cesser sur le champ la diarrheé colliquative et tout symptôme mortel. Enfin il faut observer que dans l'amputation la réunion par première intention est généralement adoptée et suivie de succés.

Ce qui prouve la forme adynamique que le climat imprime à toutes les maladies, est la necessité ou l'on se trouve de nourrir le malade à partir du jour même de l'operation; car la diète entrâineroit le plus souvent la mort; ce qui vient à l'appui de ce fait est l'absence ou (quand elle se montre) le peu d'intensité de la fievre traumatique.

La ligature des arteres tombe ordinairement du 3me. ou 5me. jour, et par la simplification du procedé operatoire usitè dans les amputations circulaires, la cicatrice du moignon est terminée du 8me. au 12me. jour, si toute fois quelque cause malheureuse ne vient en arrêter la marche; ce dernier cas est fort rare et le malade reçouvre en peu de temps son embonpoint primitif.

Article VIII.

Report on the Medical Statistics of Quetta.

By A. H. Leith, Esq.

Presented by the Medical Board, November, 1841.

The part of Khorasan in which the subject of this report is situated, is a succession of valleys between high ranges of mountain limestone, which run nearly N.N.E. and S.S.W. the strata of the rock dipping generally to the W.N.W. These ranges sometimes have intervals of considerable extent, where the coalescing valleys form plains; in this manner is formed the Dusht-i-bedauleh upon which we emerge from the top of the Bolan Pass. After crossing the northern end of this plain into which the abrupt ends of two or three ranges of rocky mountains and their intervening valleys jut, we enter the farthest valley which is called Shal. This valley follows a N.N.E. direction for twelve or fourteen miles, and then forming an angle, turns to the westward through an interval in the next range, which only partially separates it from the Pisheen valley.

The valley of Shal varies in breadth from four to six or seven miles: at its angular part it is much wider. In the bottom of the valley the ground slopes from each side, the declivity from the eastward and northward being the gentler and more extended, that from the westward and southward the greater, and terminating sooner in the line along which the stream that arises at Sirial runs. At the angular part especially is the slope extended and where it terminates Shalkote or Quetta is situated — this is a small mud built walled town with a wet ditch and a central conical mound, on which are some ruinous buildings, formerly the citadal.

Quetta is in N. Latitude 30° 8′ and its Longitude is said to be 66° 53′ E. Its elevation above the level of the sea is about 5250 feet. Thus situated it has an atmosphere diminished one-sixth in density, which together with its position so near the Tropic gives it a great annual range of temperature.

The seasons are divided by the inhabitants into five, viz. *Zumustan* or winter, of nearly five lunar months duration, commencing about the

beginning of November : it is subdivided into three portions of about forty days each, these are called *Taruchilu*, *Speena Chilu* (during which snow lies on the ground) and *Suru Chilu*. Then comes *Surlé* or spring, it begins about the middle of March and continues about three lunar months. It was in this season, that the portion of the force to which I am attached arrived in the valley ; the trees were then clothed with their new foliage, the fields were green and the ground was beautifully studded with wild flowers, identical or congeners with English species : snow still continued to fall on the higher parts of the mountains when it rained in the valley, and it was not until the beginning of May that the last traces disappeared from the higher summits of Chiltun, Huzar Gunjee and Tukatoo. So uncertain is the climate, that snow has been known to fall in the valley during the barley harvest, which takes place in June. This year (which was unusually hot) in July, snow was still found in the crevices of the rocks and brought into our camp for sale. *Ahar*, the next season begins with the first ripe Shah-toot (mulberries) about the commencement of June and lasts about forty days the weather is hot but not oppressive ; the heat increases rapidly. In *Ahar* apricots are ripe and the barley and the wheat harvests take place. *Vussa* which is sometimes called Sawun follows, and is also of about forty days' duration. This year it has much resembled the hot season in the inland parts of India before the monsoon ; the heat has been sultry ; the herbage on the unirrigated ground was quickly burnt up. In this season we had cloudy and hazy weather with a few thunderstorms ; on two occasions rain fell, and a fall of rain is yearly expected in this season, and on it in a great measure depends the success of the juwaree crop. The fruits of this season are melons, grapes, plums and pears, cucumbers also are abundant. *Ahar* is considered rather unhealthy by the inhabitants, but much less so than the next season or *Sper Muné*, it is also of about forty days, beginning about the last week of August ; it is analogous to the European autumn : the weather becomes rapidly cooler and the atmostphere is clear and unclouded : the jawaree and maize harvests take place ; the leaves become yellow and fall ; apples, quinces and pomegranates, are ripe. *Wur Muné* follows, it is of one lunar month's duration ; it is considered healthy by the inhabitants ; in it they prepare their winter provisions, &c. It is common with the husbandmen to designate the seasons by the names of the grains and fruits that ripen in them.

On our first arrival, the wind blew chiefly from the northward of west, but since May, with few exceptions, it has blown during the day

strong from the westward, and often very violently, raising much dust; during the nights and mornings there has been a light easterly breeze or a calm; and during August and part of July, from sunset until about 10 P. M. there was generally a southerly wind which brought a thick haze down the valley.

The following is an abstract from the register of the thermometer at Quetta from the middle of April to the middle of September, with the exception of five weeks in June and July, during which the observations were made at Mustoong. As by comparison of the temperature at these two stations, I found it to be alike, I have incorporated the observations made at Mustoong with those made at Quetta.

April last 15 days		May.		June.		July.		August.		September first 13 days.	
Mean.	Mean daily range.	Mean.	Mean daily range.	Mean.	Mean daily range.	Mean.	Mean daily range.	Mean.	Mean daily range.	Mean.	Mean daily range.
60.	18.	68.4	29.	80.2	30.6	82.6	29.4	80.8	25.	62.5	26.7

N. B. — It was during the last fortnight in June and the first three weeks in July that the temperature was observed at Mustoong.

These observations were made in a single poled tent with double fly and single walls, similar to those of European soldiers. The difference between the temperature in such a tent and that in a house, both being open and allowing free access to the external air, I found to be in the mean daily maximum in July, less than 6° — the thermometers were in both, hung in free air: — it is frequently the case that the temperature of a house is underrated from the thermometer being hung against a wall.

The neighbouring hills vary much in height; at their highest parts they are estimated at two or three thousand feet; they are of mountain limestone abounding in organic remains, chiefly of cephalopodous mollusca. Masses of lucullite and stinkstone and some chert occur. At the N.E. angle of the valley near Hunna, where the stream that supplies our camp, enters from the neighbouring valley, red conglomerate lies over the limestone, and in that neighbourhood as well as at the corresponding S.W. angle, there is shale alternating with flaggy limestone. Talc occurs in the shale. — Selenite is also found. The bottom of the valley is of a light alluvial soil composed of clay and calcareous and silicious sands, and is mixed with from a fourth to a half or more of rolled pebbles of mountain limestone — that is, in parts not cleared for cultivation.

Cultivation being chiefly dependent on irrigation, is limited in extent and in situation by the supply of water, and the fields and villages are nearly confined to the lowest ground. The streams continue to flow throughout the year, but they are not numerous ; an artificial supply is obtained with great labor by Karez or underground channels, which at a depth of thirty, forty or more feet, convey the water from the bases of the hills. These karez are formed and kept in repair by means of wells along their course at intervals of from twenty to forty yards. Besides the grains already mentioned, lucerne is cultivated to a large extent ; the ground on which it is grown is kept continually wet, while, from the repeated cutting of the plant, the sun's rays are allowed to act on the soil. Madder is grown in considerable quantities, and in its cultivation the damp soil is much exposed to the sun's rays, and in the beginning of October in digging up the roots, the ground is turned up from a depth of two or three feet : at the same period the soil is all broken up for the reception of the wheat seed.

The health of the natives of a place is not a good criterion of its salubrity or the contrary for strangers, for the constitutions of the former have from birth been modified by the circumstances in which they live, yet from the manner in which they are affected we may form an opinion regarding the endemic influences, although not of the intensity with which they will act on the new comer. The chief maladies to which the inhabitants of Shal are subject, are bowel complaints and fevers, and the season of their prevalence are Vussa or the hot season, Sper muné or the autumn, especially the latter. The present year has been an unusually sickly one to the inhabitants, and fever has been very fatal among them, this is ascribed to the excessive heat which there has been. In the memory of man, it is said, so hot a season has not been known.

In forming an opinion regarding the salubrity or otherwise of this valley, from the state of health of the Troops stationed here during the last five months, care must be taken not to include among the cases of endemic disease those complaints which were contracted elsewhere.

The regular corps belonging to the Field Force, that have been stationed here, are the 1st and 4th Troops Horse Artillery, H. M. 40th Regiment a Company of Madras Sappers and Miners (Natives), a Wing of Native Cavalry and the 20th and 21st Regiments N. I. — of these the 1st Troop H. B., H. M. 40th Regiment and the 21st N. I. alone have remained, all the five months at Quetta. The 4th Troop H. B., the Sappers and Miners, the greater part of the Native Caval-

ry and the 20th N. I. were detached in May and June to Noshky, where much severe and lasting sickness was contracted in the forms of fevers and bowel complaints. The 20th N. I. moreover, had ascended the Bolan Pass in February and had in consequence been exposed to very inclement weather, from which they were but poorly sheltered in their routies and against which they were not defended by sufficient clothing. It must also be borne in mind, that the Troops had suffered more or less during the cold season in Kuchee from diarrhœa, a complaint which though at first mild — so mild as but seldom to bring the soldier to Hospital, — yet that has proved very obstinate in those who unfortunately brought it with them to Shal. Again it may be repeated that the present year has been one of extraordinarily high temperature, the effect of which would be to enhance the strength of those influences which will subsequently be mentioned, as the causes of disease as it occurred among us.

Table shewing the percentage of diseases and deaths among the corps stationed at Quetta, from the middle of April to the middle of September, 1841.

	April.	May.	June.	July.	Aug.	Sept. up to 13th.	Total Cases per cent	Deaths. per cent	Deaths. Total.
1st, Troop H. B.									
Bowel complaints . .	.92	3.70	3.70	5.61	3.70	3.70	21.33	..	..
Fevers	4.59	1.85	3.70	1.87	4.63	.93	17.57	..	..
Hepatic Affections . .	..	..	..	..	..	..	..	..	..
Other Diseases . . .	3.67	1.85	6.48	6.54	3.70	1.85	24.09	..	..
Total .	9.18	7.40	13.88	14.02	12.03	6.48	62.99	..	..
H. M. 40, Reg.									
Bowel complaints . .	3.15	4.21	5.19	7.67	10.50	2.90	3 .62	2.01	17
Fevers	5.60	5.03	15.46	17.59	21.48	10.64	75.80	1.54	13
Hepatic affections . .	.23	..	.71	1.77	.72	..	2.43	.12	1
Other Diseases	3.27	3 41	5.64	4.84	3.93	1.33	22.42	.35	3
Total . .	12.25	12.65	27.00	31.87	36.63	14.87	134.27	4.02	34
21, Reg. N. I.									
Bowel complaints . . .	3.39	1.95	1.89	1.32	1.88	.94	11.37	.09	1
Fevers	1.74	2.54	3.12	3.77	8.67	13.96	33.80	.19	2
Hepatic Affections . .	..	..	..	..	..	..	..	..	..
Other Diseases . . .	3.58	2.34	3.40	3.58	2.17	.94	61.01	.19	2
Total . .	8.71	6.83	8.41	8.67	12.72	15.84	16.18	.47	5

Bowel complaints and fevers form the bulk of the diseases. In examining how far they are referable to local causes and peculiarity of climate, I begin with bowel complaint. It has before been mentioned that a great number of the Troops were more or less affected

with diarrhœa in Kuchee, and carried with them to Shal the disease or a strong tendency to relapse into it. Before we left Kuchee the weather had become warm, the mean daily temperature taking the last week, being 79° Fahr.; there was consequently a great change experienced on ascending to a mean daily temperature of 60° which we found it to be at Quetta, with a strong piercing wind blowing. This change is sufficient to account for the numerous admissions for bowel complaints which then took place among the Natives of India. We were now in an atmosphere in which from its diminished density and dryness, a more rapid evaporation from the surface took place than our bodies had been accustomed to, and when the heat increased, which it soon did in a rapid ratio, and the usual changes of the blood in the lungs were retarded, the skin came to perform a very active part as an excretory organ, and relieved the liver of part of its proper work as well as of the part of the lungs office of depurating the blood, which during their inactivity, would have been performed through an increased secretion of bile, in a dense and moist atmosphere with a temperature similar to what existed here. From the liver thus becoming less active, the bowels lost their ordinary stimulus and became deranged: the bile which evidently ceased to be eliminated through them in sufficient quantity became the cause of jaundice, another not infrequent disease which however showed itself in a mild form. This state of the bowels was, if neglected, often followed by an acute attack of dysentery or it ended in chronic dysentery with ulcerated bowels and sometimes abscess of the liver. What added much to the evil, was the inferior quality of the food furnished to the Troops; the butcher meat was often bad, and for sometime the bread was of a quality ill adapted for men who had a proclivity to this form of disease. An unvaried item in the Natives rations was Dhal, than which scarcely any food is more hurtful to them when thus afflicted. There was an almost total want of culinary vegetables; and an inferior sort of fruit, the produce of the orchards surrounding the neighbouring villages, was greedily eaten and frequently in an unripe state. Latterly there has been a sudden reduction of temperature with a continued dry state of the atmosphere and with increase in the body of positive electricity: in connection with these changes some cases of acute dysentery have presented themselves. Unless it be supposed that morbific exhalations of two distinct natures rise from it, the soil of the valley cannot be considered as the cause of the bowel complaints, for in the locality where deleterious miasmata show themselves to be in fullest operation by the inordinate num-

ber of fever cases that occur, there is not found a more than ordinary proportion suffering from affections of the bowels.

The above are the apparent causes of this complaint as it came under my observation, — they may be again enumerated, 1st Sudden change from a warm to a cold climate ; 2nd, The change to a rarer atmosphere ; 3rd, The rapid rise of temperature in the hot month; 4th, Inferior food and indulgence in bad fruit ; 5th, Change from hot to colder weather, with alteration in the quantity of idio-electricity. The first of these causes might be avoided by a little delay in the ascent of Troops from Kuchee in the spring months ; in the hot months it would not exist, and those coming from northern stations would not be affected by it. The hurtful nature of the second appears to depend on its connection with the third cause, it would be less powerful in the subsequent year than on the first arrival. The third cause, the rapid increase of temperature would be a permanent source of disease, and it appears to be a fruitful one among the inhabitants of the country. The fourth cause would cease to exist, were Troops permanently cantoned here ; a plentiful supply of vegetables might easily be grown, as the soil and climate are particularly favorable to the cultivation of most English vegetables. The fifth cause would be permanent — it is one which operates similarly in other countries and is yearly seen in considerable activity in the Dukhun, a careful adaptation of the clothing to the state of the weather is the best preventive.

Fevers on our first arrival from the warm climate below the Pass, while it was still cold here, were frequently of a congestive nature, the head or the lungs being the seat of the complication. When the hot weather set in, congestion of the brain again became a common accompaniment of fever, and most frequently in those who had been exposed to the sun or who had lived too freely. In the end of August and in September, remittents and intermittent became epidemic. The fever which has occurred toward the end of the hot weather and beginning of autumn, appears to be occasioned by miasmata. This opinion is strongly supported by the facts that it became prevalent when vegetation began to cease and the cultivated ground became exposed to the sun's rays, and that those situations which à priori would have been expected to abound most in malaria, are in reality the spots where this fever is most prevalent.

In explanation, I must first shortly describe the topography of Quetta. The town, as before stated, is at the bottom and nearly in the middle of the valley, and is on a highly irrigated level spot; this low part of the valley is fully under cultivation, with the exception of a piece of

meadow land, which from the abundant moisture, is always green. The commissariat stores are a little to the eastward of the town ; and the residence of the Political Agent, the ordnance stores and the Lines preparing for the 20th N. I. are about three or four furlongs to the south-eastward on the same level, and surrounded with fields and watercourses. Lately H. M. 40th Regiment have been encamped on the low ground to the westward of the town. The HeadQuar ter's camp is about one and a quarter mile to the northward of the town upon the gentle slope which descends from the N.E. angle of the valley, and on ground which has never been under cultivation. The camp faces nearly S. W. on its right flank at a distance of about half a mile there is a low narrow line of cultivation and two or three villages. The wind has almost, without intermission during the day, blown strongly from the westward, and to its influence the Head Quarter or upper camp has been fully exposed, and I think this strong ventilation at this season is salutary, especially as the wind appears to pass over scarcely any irrigated ground on its way. The neighbourhood of the Political Agency, or what is called the lower camp, is from its low and sheltered situation in a great measure deprived of this ventilation. On the other hand, in August a light southerly breeze in the evenings brought a fog down the valley which came upon the lower camp, but in a much less degree, affected the upper ; and this month the evenings and nights have been cold and generally calm, thus favoring the condensation over the lower ground of the noxious exhalations which the still powerful sun may have raised during the day ; or there has been a gentle easterly air wafting these condensed malaria in the direction of the camp of H. M. 40th Regiment.

The adventitious circumstance of numbers of putrid carcases of camels and other animals being strewed about the lower camp, must add to its present insalubrity. That the lower camp is at this season particularly unhealthy is shown by the fact, that scarcely a Native of India or a European residing the reduring the last two months, has escaped an attack of fever ; and a continued exposure to the pernicious air is frequently followed by enlargement of the spleen. But to particularize — the number of fever cases admitted into the Hospital of the 20th N. I. during the last eighteen days, has been 190 ; of these the detachment at the Political Agency of an average strength during that period of 92 has furnished 87 cases or 94.5 per cent of its strength, while the admissions from the portion of the Regiment in the upper camp has been 103 or only 14.7 per cent of its strength. Out of 200 Irregular Horse of the Upper Sind

Political Agency, at one time there were but 65 fit for duty, the rest being nearly all laid up with fever. The deaths from fever among this body of Irregular Horse have been numerous, whereas the sick of the detachment of the 20th N. I. from being removed for treatment to the Regimental Hospital in the upper camp, suffered comparatively little; no instance of the fatal termination of fever having occurred among them since July. The great number of fever cases in the 21st N. I. which is encamped in the upper camp, may be accounted for by its furnishing its proportion of guards and night piquets to the Town and to the Commissariat stores.

The number of fever cases among the Troops here, has hitherto been on the increase, especially among the European soldiery, and it is likely to continue great, until the very cold weather sets in.

The fever complicated with local congestion of which a few cases occurred at the time this force first arrived, is to be expected in greater proportion during the winter months, and then also inflammations of the lungs and other important viscera are likely to be of frequent occurrence. A sufficiency of warm clothing and good quarters are the prophylactic means which naturally suggest themselves; regular exercise ought to be a attended to. The fever of the hottest months might be in a great measure prevented by providing good barracks and restraining the men as much as possible, as is done in India, from exposing themselves to the sun's rays. Wet tatties of juwasee, which grows here abundantly, might be used. It would be useful to have white covers to the caps worn by the European soldiers when off duty as well as on duty. The importance of having the head protected by a colour which will absorb fewest of the sun's rays, will be seen when it is stated, that at Mustoong which differs but twenty-five miles in latitude from Quetta, in the middle of July, the actinometer indicated the intensity of the sun's rays to be 189½° Fahr. Water at that station boiled at 203° Fahr. thus the heat produced by solar radiation was but 13½° below the boiling point.

The only effectual means of escaping the pernicious influence of the miasmata, is to avoid the localities where they are in fullest operation, and I know not of a spot near Quetta where greater immunity is to be expected than the slope on which we are now encamped, and about a half or three quarters of a mile to the eastward of our present ground, that is, nearly on the site of our first camp; there we should have the advantage of rather higher ground and be at a greater distance from the low cultivated belt which is on our right flank. On the other hand, there is scarcely a worse spot at this season than that occupied by the Political Agency, the ordnance

stores and the lines which are being prepared for the 20th N. I. When the intense cold of winter shall have checked the production of malaria, this last mentioned situation of course will be less objectionable, and it has the advantage of being more sheltered than many others from the winter winds: but until then, at any rate, it ought to be avoided. The ground on which the upper camp is pitched although at present probably too exposed for the winter months, might be sufficiently sheltered by hedges and walls.

It has been already mentioned that the present has been a year, of very unusual heat, and as far as the inhabitants of the valley are concerned, it has been one of more than common sickness, hence it is a legitimate inference that our Treops have suffered more than they would have done in other years; useful information on this subject might be obtained from the Hospital Records of such corps of the other Presidency, as may have been stationed here before the arrival of the Bombay Troops. The moral circumstances in which the Troops have been placed have been unfavorable, they have had the tedium and irksomeness of a long halt without amusements or anything to interest them particularly, and without any definite object in prospect.

After making allowance for the unusual heat of this year and the unfavorable circumstances, both physical and moral, to which the Troops have been exposed; and on the other hand taking into account the comparative absence of the means of drunkenness, that fruitful source of disease in permanant cantonments, there will, I fear, enough remain to warrant the conclusion that this is far from being a healthy place.

With regard to the eligibility of *Siriab* for a cantonment, I should expect it to be more unhealthy than our present situation: it is in a more confined part of the valley, and during July and August, a haze fills that part while the site of our camp remains comparatively clear. The water too, I should expect to be injurious from large admixture of saline matter; this I have not ascertained to be the case by analysis, but I observed the banks of the stream to be much incrusted with a salt.

Mustoong, which is situated S.S.W. of Quetta, in N. Lat. 29°43′ nearly, in another valley, has a climate, at least, during the hot months, very similar to that of Shal; the winds are the same and soil is the same but less stony. The ground on which the camp is pitched (to the eastward of the town at a little fort called Khoodawut) is high and intersected with deep nullahs, it is close on the east side of a continuous line of orchards which is several miles in length. The

valley appears to be more productive than Shal, and the inhabitants consider it more healthy. During the fews weeks that I was employed on duty at Mustoong, I met with the same shades of disease as at Quetta. There, also, there occurred some cases of fever and many of bowel complaints, that had their origin at Noshkee whither a detachment of H. M. 41st Regiment was sent along with the detachment from Quetta. The Company of European Foot Artillery at Mustoong, like the Troops of Horse Artillery at Quetta, has been more healthy than it would in all probability have been in India, where an unlimited quantity of ardent spirits could have been obtained by the soldiers. In comparing the state of health of the Artillery with the other European Troops, I cannot hazard an opinion as to the cause of their greater immunity from sickness hitherto, further than that in the case of H. M. 40th Regiment nearly the worst ground in the valley was latterly occupied by it.

Both at Quetta and at Mustoong convalescence from severe sickness is very slow during the hot weather and a cooler spot to be desired. Such a spot may be found when the neighbouring country has been more fully surveyed. Chughye, (or Kassasir close by it) has been thought of, but from what I saw of the place, I fear it would not answer.

The effect of sol-lunar influence in fevers is experienced to be as great here as in India.

In conclusion, I may enumerate some of the indigenous plants of this country which belong to genera, some members of which are possessed of medicinal virtues, from want of access in this place to books of reference, I am in many cases unable to determine the species.

The genera are avena (oats are found only in a wild state) allium, iris, daphne, rumex, rheum, veronica, salvia, menthá, marrubium, melissa, hyoscyamus, datura solanum, convolvulus, leontodon, centaureas, artemisia, achillea, apium, pastinaca, ranunculus, papaver, malva, althæa, rosa, amygdalus, euphorbia, ricinus, salix, juniperus, pistacia, adiantum. There are two species of pistacia that I have met with, both are found on the rocky bases of the mountains and in their ravines, one yields a resin like mastic and which is sometimes used by the hukeem as a substitute for it, the other yields a substance resembling in some measure Chian Turpentine. The juniper is a large arboreous species, its wood is the common fuel of this part of the country, its berries are possessed of much of the sensible qualities of those of its British congener, the juniperus communis, and I have tried their medicinal virtue and have found them to be

diuretic; the tree yields abundance of a resin that might be found useful in the arts. The salix (willow) yields salicine which is thought to be a valuable medicine in the treatment of intermittent fever, and a trial of the bark of the tree this season has given me a favorable opinion of it as a febrifuge. The poplar, a common tree here, but not indigenous, also yields salicine.

For the hurried manner in which I have arranged the information, that a short residence here has enabled me to possess, I must plead as an excuse the multiplied duties which have devolved on me on account of the sickness of some of my fellow medical officers.

P. S. — A friend has just given me a portion of a crystallized saline mass which he found at Karez Dost Muhummed, two marches from Mustoong on the Kelat road, and which on analysis, I find to consist of 60.3 per cent of sulphate of Soda or glauber salts; and 39.7 of chloride of sodium or common salt, with traces of lime and of iron, but not in appreciable quantities ; I detect no magnesia in it

An efflorescence that I found in a Karez at Mustoong, I ascertained to consist of the same salts with a very large admixture of carbonate of line. Salsola abounds in the neighbourhood of Mustoong.

APPENDIX.

APPENDIX.

I

**Catalogue of Medicines found in the Bazaars of Hydrabad, Khyrpur and Shikarpur.* By the late P. B. Lord, M. D.

1. Kayaphul. Sans. — Bark of a tree unknown ; brought from Bombay and other parts ; of a dull red colour, no taste or smell ; thick, light, and friable.—Use-reduced to powder is snuffed up for cramp.

2. Jumbu. Bark. H. and S. *Eugenia Jumbolana.* Roxb. — Bark of a tree that grows in Sindh. Use — reduced to powder ; is sprinkled on fetid ulcers for which its astringent properties may probably render it serviceable. The specimen appears perfectly inert from having been too long kept. The tree bears a berry which is eaten.

3. Munderi. H. and S. — Found every where in Sindh. Used as a cataplasm for any external inflammation : sometimes given internally in powder with sugar for gonorrhœa ; dose one tola. Parts used, root, leaves and seed ; Taste mucilaginous.

4. Kala Dhatura. H. *D. fastuosa.* Willd. — Black seed found in jungle in Sindh, more especially on any slight eminence. Dose three masha ; strong purgative.

5. Hurmul. H. and S. *Rutaceæ.* — Grows in Beluchistan and Sindh, on hills and about tanks. The powdered seed given in fever ; dose uncertain. Used

* — I have endeavoured to indicate the language from which each name is taken and for this purpose have used the following contractions P. signifying Persian. H. Hindustani, S. Sindhi, Sans. Sanskrit, G. or Guz. Guzarathi, Arab. Arabic, Punj. Punjab ; but as I have no pretentions to be a philologist I fear I must claim indulgence for numerous errors in this part of my task.

The list of botanical synonyms is rather meagre, but except Roxburgh and Lindley I have not a single book of reference. It probably may be much increased out of Ainslie which I regret to say I have not with me.

The uses attached to each medicine are such as the native practitioners are in the habit of attributing to them.

I have given the locale from which each article was said to be brought, but the frequent recurrence of the name Khorasan induced me to inquire respecting it, and I found the native idea attached to that name, included all the hilly country west of the Indus from the Hala mountains to the confines of Persia. P. B. L.

* Note by the Secretary. — The publication of this Catalogue has been delayed till the present time, from a desire on the part of the Committee to indicate those articles which are procurable in the Bombay Bazaar. Circumstances have prevented the accomplishment of this wish, and the Committee are unwilling to withhold any longer this additional proof of the industry and zeal of its lamented author.

also in rheumatism as a fumigation said to be very powerful in its effects; no obvious result except slight catharsis and when used as a fumigation diaphoresis. Taste bitter rather nauseous; of fresh plant extremely bitter. To be had abundantly.

Punir. S. *Physalis!* —Belúchistan, Afghánistan, hills abundant. Part used. capsule containing seeds imbedded in bitter mucilaginous matter, infusion used as laxative for children.

7. Huswak. P. — Beluchistan part used leaves and twigs forms a cooling infusion used for heat of body.

8. Guldur. P. — Hills, Parts used leaves and twigs; reduced to powder and mixed with some liquid is administered to infants and occasionally adults for fever.

9. Drammau. S. — Fragments of a small thorny shrub with five locular capsules found in Sindh. A decoction of these is used in inflammatory fever.

10. Lasuri. *Cordia myxa.* Roxb. — Drupe — grows in Sindh. Decoction used as purgative. Taste bitter-sweet; given in mixture with other medicines.

11. Khutsu. S. P. — Taste and smell like tea. Small slender brownish leaves said to be found in hills, by which I understand them to mean Bunnoo, Bungush, &c; used externally as a cataplasm.

12. Unab. P. — The Jujubee of Khorasán used as a purgative and occasionally for coughs. Taste slightly sweetish.

13. Wuriali. S. H. (Sorif) *Pimpin : Anis :* — Anise seed used as a carminative and generally to flavour other medicines, grows abundantly in Sindh where it is sold at twenty seers the Rupee. A duty of a quarter Rupee per maund is exacted.

14. Bukru. S. — Sindh small thorny capsule; yellow flower; ground and mixed with sugar is used as a tonic.

15. Bal Hyra. S. — Drupe said to grow in Malabar and to be brought here from Bombay. It is a powerful purgative and is given in powder or decoction or fried in ghee or in castor-oil. For children it is made into a confection.

16. Ledi. S. — Bark of a tree; thick; fibrous; taste slightly bitter; brought from China; gound down on a stone is applied to the eyes in acute ophthalmia.

17. Kuddu-ka-bij. *Cucurbita lagenaria.*—Seed of a white pumpkin; Sindh, mucilaginous cooling.

18. Kamu. S. — Seems to be a mixture of three or four different kinds of leaves said to be got in the fields and used as a cataplasm.

19. Kasni. P. and S. *Cichorium.* — Sindh; a cooling decoction used in fevers, gonorrhœa, &c. A decoction of the seeds is also employed for making shurbut.

20. Gurfa. S. — Small seed with hot taste like carraway; used as carminative for little children.

21. Wall. H. Q. *Dolichos Lablab.* — A pea-black with white scar used in Dhukhan as food— here used by women with alum to form astringent balls — used also internally as astringent.

22. Wavering. H. — Small black capsule fluted on sides — brought from Bombay — Vermifuge — applied externally for headaches.

23. Methe. H. Hurba. S. — Brought from Kabul but now said to be grown in Sindh. Green leaves used as a vegetable — seeds used in medicine

mixed with hulwa (confection) and said to be very efficacious in rheumatism Taste slightly aromatic.

24. Badrung. P. & S. — Seed of a cucumber found in Sindh cooling infusion.

25. Nilofer. P. *Nymphœa lotus.*— Grows in Sindh by all dhunds or tanks. Capsules resembling those of poppy but smaller. The syrup is used in fever — a medicine distilled from its leaves is refrigerant and tonic.

The root is supposed to possess aphrodisiac properties.

26. Chunukni. S. Bhawa. Sans. Umultha. H — The pods of Cassia fistula. The pulp is used as a purgative, the seeds and external corium being rejected.

27. Unt-kuchur. S. *(Camel-root)* — Root brought from Khánpur near Buhawulpur ; bitter aromatic taste ; used internally for gripes ; also externally in water as a lotion by women who suppose it gives their bodies a fragrant smell.

28. Anghar. S. Pukanhed. Sans. Gentian *?* — A root tortuous — thick as a finger ; light brown externally ; dark internally ; no smell ; dry bitterish taste. Brought from Kot Gungur north of Attok. Astringent ; used for dysentery dose 3j to 3iss — powerful.

29. Kanna. S. — Small round grain found in Sindh — tastes like vetch tribe to which it probably belongs. Used as a poultice in rheumatic attacks.

30. Bhilawa. Sans. *Semecarpus Anacardium.* — Marking nut brought from Goa ; applied externally as rubefacient for chronic rheumatism, indolent swellings, &c. The natives also use it in some of their mixtures for encreasing sensual powers, and it is said to be safely taken internally if mixed with cocoanut oil.

31. Kolijun. S. Pan-kee-ju. H. — Said to be the nut of the plant (piper betle) from which the betel-leaf is procured. Taste hot and biting. Use — for cough — griping pains — to flavour liquor with which it is distilled — and in confection. Brought here from Kurachi.

32. Kababchini. H. Cubebs. — Brought from Bombay ; used in a very fine powder for watery eyes ; used also for toothache and to diminish salivation. Use in gonorrhœa not known.

33. Kathikini. S. *(lit. rstten stick).* — Khorasán a root wrinkled thick as a caterpillar — taste bitter, slightly aromatic — use stomachic.

34. Walljowan. S. — Abundant in Sindh — small grain with aromatic taste and smell like carraways ; used by women after delivery. Dose 3j.

35. Spunger. S. Isuf-gul. H. *Psyllium ?* — Abundant in hills — small seed mucilaginous and astringent, is used in gonorrhœa and mixed with pomegranate bark in dysentery. It is also made into a shurbut.

36. Tukhon-i-valunga. P. — Seed black linear — got from Dera Ghazikhan used for shurbut and drank freely when there is much burning in clap — also in dysentery with other medicines, large dose astringent, small cooling.

37. Khakshi. *Abrus precatorius.* — A very minute reddish coloured seed from Kandahar. — used for a cooling shurbut in hot weather.

38. Shaibelut. S. Situl Supari H. *Areca Catechu.* — Nut imported — powerful astringent in doses of 3ss. — 3j of the powder combined with opium.

39. Balby. S. — Small black seed found in Sindh. Said to possess astringent and aphrodisiac properties.

40. Wuduwul or Mauri. S. — Imported. Fragments of leaves and twigs of a yellowish colour, aromatic taste and faint smell, used in preparing sweet smelling powders for washing. Sells here at one rupee per three seers.

41. Krukathi. S. Bitter Stick. — Twigs and root of plant brought from Jaysulmere. Used to physic horses after they return from pasture. The powder also is employed for rheumatism in doses not exceeding ʒii.

42. Podina. H. *Mentha.* — Mint brought from Khorasán and sold at fourteen seers the rupee. Eaten for indigestion ; applied warm as poultice for pain of belly. No oil or spirit extracted.

43. Pahari Chanrol. H. — A rice which is said to grow spontaneously on the hills of Khorasán. It is used by the Hindús here on occasion of feasts and other religious observances. It is said to have an astringent effect and is given in dysentery.

44. Sorif-ki-jir. *Pimp : anisum.* — The root of the anise plant. It is placed all night in an earthen pot in the moonbeams. In the morning it is ground and being mixed with sugar and water forms a draught supposed to possess particularly cooling properties.

45. Sumak. *Rhus coriaria.* — Kandahar and Khorasán. A small round seed with an acid taste, always used by the natives in their curries.

46. Gul Shapur. *Polianthes tuberosa ?* — From hills to Khorasán. Leaves, seeds, twigs and flowers, of a lilac colour, all mixed together and infused in water are used to form a cooling shurbut.

47. Mumira. H. — From Yarkund. Root of plant said to be useful for dimness of sight ; ground on stone, and applied externally.

48. Kali Mulli. — Khanpúr ; astringent ; generally used.

49. Kinera. S. *Nerium odorum.* — Grown in Sindh on bank of river. Very minute black seed ; astringent ; shurbut.

50. Kulfa. S. H. — The plant is used as a vegetable the seed which is extremely small and black is said to be cooling and is used for gonorrhœa.

51. Mithi Kathi. S. *Glycyr : glabra.* — Literally sweet stick. Common liquorice grown in Khorasán and used for coughs.

52. Untgum. S. — From Dadur. A seed used in confections and as an aphrodisiac.

53. Zrikuchla. S. H. *Nux vomica.* — Brought from Bombay and Peshawur ; used externally for rheumatism and toothache. An oil is extracted and employed in preparing an intoxicating confection.

54. Musag. P. — Bark of a tree from Khorasán ; no smell ; taste slighly bitter. Native women use it to colour their lips ; occasionally used as an astringent.

55. Chupala. S. — Best comes from Marwar ; an inferior sent from Bombay used in Musála (spicery) and also in perfumes. Leaf black on one side and white in other.

56. Gao Zuban. H. Bugloss. — Khyrpúr where it grows ; leaves and twigs all marked over with little white spots ; used as a tonic after fevers, also as a stimulant ; is always exhibited in decoction.

57. Marmut. S. — Cuchí about Dádur, powder of root used for wind in stomach. Taste bitter nauseous.

58. Khabazi. S. *Malva Mauritiana.* Roxb. — Grows in Scindh. Decoction of twigs and capsules is used in fever and rheumatism ; also in preparing confection.

59. Gidra-ka-bij. S. Khurboza H. *Cucumis Melo.* — Sindh. Seeds of musk melon used in the preparation of a shurbut and supposed to possess aphrodisiac properties.

60. Kaul-i-peru. S. — Sindh : a slightly saline taste. Seeds expectorant used for cough ; stem for jaundice.

61. Ajwayan S. H. *Ligusticum Ajowan.* Roxb. — Found throughout Sindh : small seed ; taste of dill ; used for pain in stomach.

62. Senna. S. *Cassia Senna.* — Grows abundantly in jungle near Khyrpúr also about Shikarpúr. Purgative.

63. Kutkathi. H. — From Malwa and Bombay. A root used mixed with oil for the cure of rheumatism. It is also employed as a perfume and is sometimes mixed with tobacco to improve its flavour.

64. Kath Gulabi. *Catechu.* — Got from Lahor ; astringent ; used with cardamoms for pain of teeth and gums : — used also for dyeing : and applied externally with camphor on foul ulcers.

65. Mora Cuchee. S. — Leaves used as poultice in acute opthalmia ; powder given in gonorrhæa.

66. Pipli H. *Piper longum.* — Long pepper brought from Bombay. Sells at 12 annas the seer ; use, carminative.

67. Tukhm-i-Kahu. P. *Lactuca Sativa.* — Seed resembling the carraway in appearance ; brought from Khorasán. Ground and drank with sugar as a cooling draught.

68. Bhera. H. *Terminalia Myrobolans.* Roxb. — Imported from Hindustan. A hard horny fruit : kernel used as a purgative. Dose ʒvi.

69. Chukso. P. — A small pointed black seed ; grows in Sindh and Cutch. Powder put into the eye for ophthalmia : used internally for Rheumatism. Dose ʒiii.

70. Ahuber. S. — Khorasán. Berry with a strong taste of turpentine ; very good for pain in stomach ; also infused in oil and applied externally for rheumatism.

71. Yaralong. S. Ruttunjot. H. — Chips of bark of tree brought from Marwar and used as cataplasm for horse.

72. Plaspapra. H. *Butea frondosa.* — Seeds of palas or butea frondosa ; a powerful purgative and anthelmintic. — Cuchee, Daraja, and said to be found in Sindh on banks of river.

73. Kutti Chumri. S. — Pleasant, sweet, subacid, dried fruit, having the appearance of almond shells. Khorasán ; laxative ; used by goldsmiths to clean gold and silver.

74. Nindaja or Phagurwal. S. — Grows in Sindh. A thorny capsule with four septa ; used in fever and rheumatism : has purgative qualities.

75. Paneri or Lattuk. S. — Fragments of leaves brought from abroad and used as perfume. Sold at one rupee for two seers.

Note. To me this and other articles said to be Khushboi (perfumes) have no smell, nor can I understand why so high price should be paid for them.

76. Khutmi. P. *Malv ?* — Sindh ; used as refrigerant drink in fever.

77. Piple Med. H. — Root of No. 66. Decotion given as tonic after fever.

78. Kewal. S. — Sindh ; Cutchee. Used in fever ; refrigerant.

79. Jera. H. *Cuminum Cyminum.* — Cumin seed ; Sindh ; abundant. Used as carminative, also in currystuff.

80. Sonputri. S. — Cutchee and Sindh. Used as cataplasm for pain in ear.

81. Kundru. S. — Gum from Arabia. Used for toothache and as a strengthener. Applied externally for rheumatism, on the chest for cough, and generally for any acute pain.

82 Kuttala. S. — Gum from Khanpur. Strengthener.

83. Kummer-Kush. S. — Fine red gum (Kino ?) from Marwar; most powerful astringent.

84. Dhup. S. Resin. — Common yellow. Brought from Bombay. Used for ointment, also in dyeing.

85. Bheduk. S. — A stone said to be applied externally on boils.

86. Pitkudi. S. — Alum got at Hurmul-Chandea's and Cutchee. Medicine and dyeing.

87. Kala Lon. P. Khar. S. — Black salt used as purgative with other medicines. Dose ʒii ; used also in dyeing.

88. Surmah P. — Antimony ore got at Surmah-Sing, between Sonmeanee, and Khelat. Sells here at 20 rupees per maund, in Khelat Rs. 5 per maund. Used as collyrium.

89. Gogird. P. — Sulphur. Native near Bagh, when melted called gogru.

Catalogue of Medicines found in the Bazaars of Bahawulpur, Dera Ghazi Khan, and Dera Ismael Khan.

1. Kakursingi. H. — Khorasán. Reduced to powder is used for cough. Dose grains xx with honey one tola: price, one seer one rupee.

2. Papita. P. *Strychn : Colubrina.* Roxb. -- Khorasan. Most efficacious against the venom of a snake bite if rubbed on the part. Internally it is used for fever and is said to allay vomiting. One tola two rupees.

3. Post-i-jurjur. P. — From Jurjur. Taste bitter; aromatic; slightly mucilaginous. Dose one rutty. Tonic aphrodisiac : price two annas for one skin.

4. Tukhm-i-Hulyun. P. *Lipidium Sativum.* — Khorasán. Very minute seed: no smell; little taste ; light brown colour : used for preparing shurbut and confection ; strengthening : one tola one rupee.

5. Bhurungi. P. *Verbesina Prostrata.* — Khorasán. Used for cough, asthma. Dose one masha. It is also employed as a fumigation for decayed teeth, and is said to bring out worm that causes the decay: one tola two annas.

6. Mitha. H. — Khorasán. Burnt with onion or brinjal is used as an aphrodisiac, and said to be very powerful. Each fruit one anna.

7. Chobgulo. P. *Menispermum glabrum.* — Cutchee (hill country). Slightly mucilaginous. Used for cough, dryness, fever, and want of sexual powers: two seers one rupee.

8. Biswach. Islambul. P. — Given in fever, splenitis and stone in the bladder ; said also to have tonic and aphrodisiac properties ; one tola two annas.

9. Tukhm-i-Gunjal. P. — Khorasán. Black seed, seems to be a vetch : has stimulating properties, and is given mixed with pearls as an aphrodisiac.

10. Kulthi. P. *Dolichos Biflorus* — Hill of Jummu. Used for strangury ; stone in the bladder ; also for lying-in women ; one seer two rupees.

11. Gulgafiz. P. — Khorasán. Tonic astringent: used as an aphrodisiac. Taste slightly bitter and aromatic.

12. Konanung. P. — Khorasán. Slightly saline taste; used by Kimigurs (alchymists) to make silver ; one tola one rupee.

13. Pubbrica. Pitha. H. — Khorasán. Sindh. Leaf and seed of nymphœa: used to check vomiting; astringent.

14. Khun Shasha. P. — Kerbála, a gum (lac); strengthening; used in confection; one tola four annas.

15. Mulathi. H. *Glycyrrhiza.* — Dájul near Mithun. Liquorice root; used for cough, dryness, &c. two seers one rupee.

16. Gharikhun P. *Agaric.* — Irán. Strengthening; used in confection; one tola one rupee.

17. Gul-ubbas. P. — *Mirabilis jalapa.* Buhawulpúr. Aphrodisiac.

18. Tubashir. P. — Imported. Got from Bambú; astringent: used as gargle for sore mouth; one tola six annas.

19. Shahudnach. P. — Bokhara. Diuretic; one seer twenty rupees.

20. Khedru. P. — Khorasán. Used for dryness, in confection.

21. Sut-i-gulo. P. — Extract made from No. 7; white starch-like. Used for cough, dryness and heat of body, fever, and as a tonic.

22. Basa P. — Khorasán. A leaf of green colour; smell tea-like; taste slightly mucilaginous and bitter; used for cough.

23. Gulpistan. *L. Pistacia?* — From the East. Used internally to enable women to bear children; dose two rutty.

24. Gulabkabij. P. and S. — Indigenous rose seed. Used by women in combination with other matters to form astringent balls.

25. Juft rumi. P. — Roum. A gum with slightly aromatic taste. Used in confection and generally in the preparation of aphrodisiacs; one tola sells for three rupees.

26. Hubbakak-i-bij. *Arab.* — Khorasán. Aphrodisiac; in large doses, purgative.

27. Zurnikh. P. — Khorasán. A root resembling turmeric. Used as aphrodisiac.

28. Ushun. P. — Impure liquorice from Khorasán. Used in strengthening mixtures.

29. Tajun. P. — Khorasán. Aphrodisiac.

30. Tookhmiferung, Mooskh. P. — Khorasán. Shurbut: one tola eight annas. Qr. seeds of Vinka Rosea?

31. Afabund. P. — Khorasán. Some dried fruit; mucilaginous. Used as strengthener; one tola one anna.

32. Jured-i-Bedustar. P. H. — China. (Castoreum). Most powerfully aphrodisiac; sells at eight rupees for one tola.

33. Ma-i-shutur. *Arab.* — Arabia. Extremely powerful aphrodisiac. It is made by allowing a camel's calf to drink once of its milk; the calf is then killed and the coagulum found in its stomach is this Má-i-shútur. It is applied externally and sells at nine rupees per tola.

34. Ufsuntin. *Absinthium.* — Khorasán. Fever; cough; tonic.

35. Kurayat-ki-Par. Cherayta. H. — Khorasán. Bitter; given in fever; in large dose it is laxative; in small, tonic; one tola three annas.

36. Guli Malim. P. — Khorasán. Seems to be dried rose leaves. Used as perfume and tonic: one tola one rupee.

37. Furfuryun. P. — Khorasán. A gum; tonic; aphrodisiac.

38. Nilkuchu. H. — Khorasán. A gum very strengthening.

39. Muhmira. P. — Khorasán. Externally for dimness of sight.

40. Brkh-i-Kakela. P. — (Cardamom root) powerful tonic. Khorasán.

41. Gul-i-Mamool P. — Khorasán. Aphrodisiac; in large dose laxative. Used in decoction for toothache.

42. Tukhm-i-Kusur P. — Kabul. Shurbut. Astringent.

43. Tukhm-i-Paluk. P. *Justicia.* -- Indigenous; cooling.

44. Siah Ajowan. P. — Khandahar. Hot tonic: used in jaundice.

45. Ajmud P. *Opium.* -- Bikanir. Grows also in desert. Hot; aromatic; (thyme or parsley?) four seers one rupee.

46. Loda Subz. H. P. — Umritsir. Used for dyeing; astringent.

47. Pukanbed. *Gentiana.* — Umritsir. Carminative.

48. Tanocha. — Umritsir. For palpitation of the heart.

49. Krukutki. — (Lit. bitter stick). Umritsir. Used for horses; also occasionally for men as a tonic.

50. Kuttichumri. — (Lit. Sourskin) Kabul and Khorasán. Used by goldsmiths to clean gold and silver, also in curries: large dose laxative.

51. Tukhmi-khyr. P. *Cucumis Sativus.* — Indigenous. Seed of a melon: cooling; moist.

52. Hirby. Punj -- From Nagowalla pahar, i. e. hills infested by snakes. I could get no more particular account of its locality than this. It is used for snake bites, and I am inclined to look on its efficacy as tolerably well established, inasmuch as I obtained a bit of this very same plant from a Bazigur or snake-charmer, whom I met at Multan, and who instanced his own experience of its powers.

53. Lod Sufaid. Punj. -- Umritsir. Eye complaints: externally.

54. Nagkesur. H. *Mesua Ferea.* -- Umritsir. Used in Menorrhagia; specimen seems quite inert.

55. Sena Mukki. H. -- Indigenous: laxative.

56. Howai Jira. — Meeapur. Splenitis: used for children.

57. Bahara. H. *Termin. myrobalan.* — Jummu. Cathartic: used for children.

58. Hub' ul Kudrat. *Arab.* — (Lit. God's own) Khorasán. Astringent, and aphrodisiac.

59. Lod Muchuck. S. -- Khorasán. Dyeing leather, five seers one rupee.

60. Koakuni. *Punj.* -- Indigenous, in bank of river, used by women as an externally astringent.

61. Sawan. S. — Duraja in Sindh. Cooling; used for children; in large doses given to horses when griped.

62. Turvikathi. *Punj.* -- Pale, Cathartic.

63. Chawaker. *Punj.* -- Khorasán, Native rice, tonic; used by Hindus during fasts. Two seers one rupee.

64. Khurbozaka bij. H. *Cuc. mels.* -- Indigenous, heating, mixed in preparing bhung. Six seers one rupee.

65. Podina. P. *Mentha Sativa.* -- Dajul. Used for Horses; given in decoction or powder for gripes.

66. Tukhm-i-Kutusha. P. -- Cutchee. Cooling; shurbut.

67. Wavering. H. — Umritsir and other countries. Used to expel worms from children.

68. Satur Murwa. *Origanum.* — Some sort of Marjoram. Used for wind in the stomach. Brought from Khorasán.

69. Badeumkhutai. P. -- Khorasán. Taste like almonds; aphrodisiac.

70. Mochrus. *Hyperanth : Moringa.* — A red gum got from Horse radish tree, is carminative, astringent, tonic and aphrodisiac.

71. Tukhm-i-Kahu. P. *Lactuca Sativa.* — Indigenous ; cooling.

72. Punir. P. & S. *Physalis.* — Dajul. Laxative. Used for children.

73. Jaoze Mukuddur. P. — Jubbu ka pahar. For horse.

74. Soksamundur. P. *Courolontus Argentius?* — Indigenous. Bank of river. Astringent and aphrodisiac.

75. Shatura. P. — Indigenous ; cooling.

76. Usman Puri. P. & H. — Desert. Used by women as external astringent.

77. Ajowan. H. *Ligusticam Ajowan.* — Indigenous. More generally cultivated ; sown in Asú, gathered in Vesák ; sells at twenty seers the rupee, aromatic, carminative and aphrodisiac ; whence the proverb: —

Kahi ajowan,
Bude ka hoga juwan.

78. Pazihr. P. *Bezoar.* — Khorasán. Antidote. Used internally for snake bite or after the administration of posion : got from the intestines of several of the deer and goat species ; sells at twelve rupees for one tola.

79. Ajmuda P. *Vittate.* — Khorasán. Tonic ; large dose narcotic. Used for jaundice.

80. Baltunga. P. — Vellait. Stimulant ; aphrodisiac.

81. Shahbalut. P. *Quercus belut.* — Vellait, (Afghánistan). Used as astringent and aphrodisiac. — N. B. It seems to be an acorn.

82. Kul Kathe. H. — Umritsir. Astringent.

83. Jira. H. *Cuminum Cyminum.* — Dajul. Aromatic and carminative. Used for griping, wind in stomach, also in curries.

84. Giruchun. Arab. — Arabia. Used for enchantment.

85. Funduk. P. — Khorasán. Tonic.

86. Pista. H. P. — Khorasán. Astringent. Used by women. Said to be pistachio nut ; not to be inferred from the specimen.

87. Ishk-pecha. P. — *Ipomœa quamoclit.* — Indigenous. Used as cathartic, but causes much griping.

88. Khubkalan. P. — Vellait. Astringent.

89. Walur. Quzur. — Indigenous. Used as an external astringent by women.

90. Jir-ishk. P. — Khorasán. Aphrodisiac.

91. Babche. H. — Umritsir. Pounded and made into an ointment with oil : is used to cure itch. In decoction is used to wash unhealthy sores.

92. Kulfa-ka-Bij. — Indigenous. Cooling ; moist ; cathartic.

93. Gugul. H. *Amyris agallocha.* — Dajul. Cures cough in horses ; also used as poultice to boil ; rubbed in for rheumatic pains : (a gum).

94. Regmahi. P. — Arabia. Applied in paste as an external aphrodisiac ; said to have great power, for which the practitioner referred to his own experience. one tola four rupees. It seems the exuviæ of some small snake.

95. Nem-bole. H. *Melia azadarachta.* — Indigenous. Seed of the Nim : used in poultice for *Hæmorrhoids :* used also for headache.

96. Wadawuka-gul. P. — Umritsir. Astringent.

97. Bukan. P. *Melia Sempervirens.* — Khorasán. Externally for Hæmorrhoids.

98. Medah-lukri. H. — Umritsir. Wind in stomach.

99. Bilgari. P. — Jummu. Powerful astringent. Dose one masha.

100. Tukhm-i-Balunga. P. — Indigenous. Cooling: makes good shurbet.

101. Tukhm-i-Morid. P. — Khorasán. Cooling; moist.

102. Kummer-kush. P. *Kino?* — Jummú. A very astringent gum use by women as external astringent: three seers one rupee.

103. Tukm-i-Surela. P. — Indigenous; diuretic.

104. Burg-i-Morid. P. — Leaves of No. 101. Cooling, moist.

105. Tukhm-i-Hala. P. — Indigenous. Tonic, hot, stimulant; used in rheumatism.

106. Bazgund. P. — Khorasán. Cooling: used for cough, for silk-dyeing; also by women as an external application.

107. Hunda. H. — Jummú-ka-pahar. Cathartic.

108. Kutuhul. H. — Hindustan. Astringent: used by women.

109. Babul-ka-gond. H. Mimosa. Arab. — Indigenous. Indifferent gum-arabic; used to give strength; also as confection.

110. Kuchur. *Curcuma reclinata.* — Bikanír. Decoction used as a laxative for children; the powdered root is snuffed for headache.

111. Behmun. H. — Umritsir. Strengthener.

112. Rewun-Chini. *Rheum.* — Rhubarb imported from the north: used externally for boils and internally as a laxative: sells here at eight rupees the maund.

113. Inderjausherin. H. *Nerium antidysentericum.* — Hindústan. Aphrodisiac.

114. Indurjau-tulkh. — Hindústan. Purgative, vermifuge; used also for rheumatism.

115. Putisa. P. — Khorasán. Used in confection as a tonic and aphrodisiac: is very bitter.

116. Hubar. P. — Cutchee. Carminative; used for children.

117. Harita. H. — Dilhí. Washing silken stuffs.

118. Kushkush. *Papaver.* — Indigenous. Cooling medicine; used in decoction for cough: (poppy seed).

119. Dhunnia. Guz. *Coriand. Sativ.* — Indigenous. Used in spicery for griping, wind in stomach; and sells at one and a half rupee per maund. (Coriander).

120. Hurmul. *Ruta Hurmala.* — Indigenous. Dry open jungle; used for pain in stomach, wind, also in fumigation to expel devil from men's bodies.

121. Sorif. H. *Pimpinella anisum.* — Indigenous. Mixed with cathartics to prevent griping; distilled for shurbet; used in pilao, sweetmeat, curries: used in gonorrhœa: six seers one rupee.

122. Kasni. P. *Cichoreum intuba.* — Indigenous. Cooling; gonorrhœa.

123. Hurba. H. *Terminalia Citrina.* — Umritsir. Cathartic: five seers one rupee.

124. Pipli. H. *Piper nigrum.* — Dilhí. Rheumatism; griping: one seer one rupee.

125. Jira-siyah. P. — Manvar. Horse medicine; also used in decoction for fever.

126. Sakur. S. Mai U'kaki. P. *Tamarix diœcin.* — Tamrisk. Gall nut got of the male tree. Indigenous: used for dyeing chints; by women as an astringent: one maund sells for two and a half rupees.

127. Munjit. *Rubia tinctoria.* -- Ghuzní, Kábul, Yarkund. Dyeing chintz; decoction, tonic ; four and a half seer for one rupee.

128. Girnulli. S. Amulthas. P. *Cassia fistula.* -- Indigenous. Umritsir, Sindh. Extract cathartic ; sells at four seers the rupee.

129. Sujji-khar. H. -- An impure carbonate of soda got from the lána (Salsoda); a desert plant ; indigenous ; used for washing, dyeing, making glass, given for cough ; in large doses laxative ; taste saltish ; one maund sells for ten annas.

130. Pitkuri. H. -- Kálabágh. Var. Red Alum. Washing ; dyeing, astringent; burnt is made into gargle for ulcerated mouth ; six seers one rupee.

131. Lon. H. -- Pind-dadumkhán. Common salt.

132. Pitkari. H. -- White alum from Dajul. three seers one rupee.

133. Imam-sunbul. P. -- Arsenic (sulphuret ?) country not known ; one seer four rupees. Chemical.

134. Firoza-Zurd. P -- Arsenic (?) Irán : chemical ; one seer two rupees.

135. Sunkiah. P. Arsenic Do. Do. Do.

136. Sung-i-lajvurd. P. -- Khorasán, Kábul. Used in confection mixed with pearls and spices as an aphrodisiac. The specimen is a pretty one of Lapis Lazuli. Contains pyrites.

137. Reg-musan. P. -- Khorasán. Stone in the bladder ; gravel; dose half rutty ; one tola five rupees.

It seems to be merely tabular crystals of an impure salt.

138. Kuj. Punj. -- Khorasán. Used in indigestion ; seems still to be only impure muriate of soda : but I have tried no test.

139. Zurd Sunkiah. P. -- Country not known ; chemical : one seer four rupees. A small dose is given in obstinate intermittent fever ; he says half rutty (sulpt. arsenic).

140. Pistakhi Sunbul. P. -- Khorasán. Another preparation of arsenic ; chemical.

141. Khujamun. Sindhi. -- Bokhara. Looks like crystallized gypsum, and tastes not unlike alum : used as astringent by women : one tola one anna.

142. Ruskapur. P. -- Bombay, (Oxy. Mur. Hydrarg.) to produce salivation in venereal ; small dose aphrodisiac ; chemical : one tola four annas.

143. Ihsani Surmah. P. -- Irán. Used for dim sight : one tola eight annas (antimony ore).

144. Hazar Sung. P. -- Khorasán. Burned is used in confection as an aphrodisiac ; one tola one anna. (Filamentous gypsum) ?

Catalogue of Seeds, Roots, &c. collected between Mithunkot and Dera Ghazi Khan.

1. Napo. Punj. Kaounul. H. — The lotus -- *Nymphæa Lotus* — Got in dhunds or pools of standing water. Seeds used as a cooling medicine Made into bread by poor people. Seeds collected in Budru (Sept.) or Asu (Oct.) Plant spring up in Jeth (June).

2. Lohur. S. — A sort of tuber or earth nut used as vegetable. Taste not unlike indifferent potatoe ; skin thick, wrinkled hairy and dark ; tuber internally white.

3. Kuder, Punj. — A sword-leaved juncus. — Leaves used for making mats; also for the manufacture of a rope which from its softness is used by the boatmen to put round their bodies when tracking their boats. (V. specimen.) Root given to cows and buffaloes to encrease quantity of milk; shape of root like ginger; externally black, internally white; tastes sweet; grows in banks of river principally above Mithun where inundation is general. The fruit is used as a vulnerary. It forms a long soft glumous head resembling tinder or sponge; the office of which it probably performs. A yellowish sweet farina is also extracted from this head (probably when it contains the blossoms) which the natives knead with water and make into cakes. I think I put a specimen of this also into the box, it had much the appearance of a lump of gamboge, but was soft and crumbling.

4. Imli. H. *Tamarindus Indica.* — The seeds used as astringent. Pulp of pods cooling and laxative. Dose 4 to 6 tolas. Used also, in shurbut and curry.

5. Lasura H. *Cordia Myxa?* Roxb. — A sorts of plum. Grows generally over country called Bokra in the Dukhun, where it is used for pickling. Used here as strengthening medicine: the tree is very large.

6. Pubbun. Punj. — Described also in a speices of Nymphæa found always in dhunds. Stalk of the plant called *beh* used as an astringent. The juice extracted from the root by incision is used in looseness and vomiting; is also considered diuretic and cooling. Seeds eaten as fruit.

7. Motian. — Red rice — grows near Mithunkot.

8. Kaysaphul. Punj. — Flower used in dyeing. Seems to be the flower of *Butea Frondosa.* Says it is found in abundance in the jungle at Ahmudpúr, Buháwulpúr and generally in the Daúdpútra country. Flowers in Jeth (June)

9. Lalre Chunna. Punj. — Red gram.

10. Rutra. Punj — Red juwari.

11. Kala Chunna. — Black gram (cultivated grains).

12. Mot. Punj. — Mut.

13. Suffaid Mut.

14. Bhunjla. Punj — Another kind of red rice.

15. Tru. Punj. *Cuc. Colocynth.* — Grows in the jungle around Buháwulpúr, Ahmudpúr, &c. and at Mithunkot abundantly. Plant creeping; flower yellow; fruit round; blossoms in Sawun (August). Used generally as a purgative.

16. Kewuri. Punj. — Used as food in time of famine. Seems of a very inferior description.

17. Kulunga. Punj. — A kind of rice.

18. Suttra. Punj. — Another variety of rice.

19. Pogpulhari. Punj. — A grass eaten by camels: grows in the jungle.

20. Putrahul. Punj. — A sort of grass cut for horses.

21. Thun. Punj. — Garlic.

22 Raowa. Punj. — *Amaranthus polygamus.* Cultivated and used as a vegetable.

23. Hurnol. Punj. *Palma Christi.* — Castor oil seed. Cultivated extensively. Used externally us an application for rheumatism, leaf made hot applied for same purpose; oil extracted after external husk has been removed.

24. Bukayan. H. — *Melia sempervirens.* A species of Nim; a wash made with the leaf is used to kill lice in the heads of children. The timber is said to be useful.

25. Isuf Gul. P. *Psyllium?* — Grown in gardens and used as cooling medicine and in preparing a shurbut.

26. Nidamuni. Punj. *Amygdalus Communis.* — The almond; plentiful at Dajul. A few trees are to be found down at Mithunkot.

27. Ohar. S. — Mustard: cultivated.

28. Mung. *Phaseolus mango* : -- Cultivated.

29. Kalla Dhatura. *D. fastuosa.* — Cultivated seeds used as purgative; said not to have any intoxicating quality.

30. Halo. Punj. — Cultivated. Used as vegetable and as cooling medicine.

31. Ma. Punj. *Phaseolus maximus.* Mash. H. — A vetch: cultivated.

32. Silan. Punj. — A vegetable.

33. Pohar Punj. — Nothing known of these but the name.

34. Wull Punj. — do. do. do.

Catalogue of Garden seeds collected at Multan (and contained in Baskets, Nos. vii *and* viii.)

1. Nafirman. P. — Sown in Káthee (November); flowers in Phagun (March): no smell.

2. Gul-i-Lala. P. — Tulip sown in November; flowers in April.

3. Tukmah. S. Umber. Punj. Padsha Pusand. P.— Sown as above; blue flower.

4. Gul-i-shumro. P. — Sweet scented; colour brown.

5. Do. do Of a red colour.

6. Do. do White (*Polyanthes tuberosa ?*)

7. Do. do. Golden yellow.

8. Ashrafi. P.

9. Guli Sudberg. P. *Rosa glandulifera.* Roxb. — Sown in Jeth, Asad, (June, July); flowers in Kathee, (Nov.)

10. Mukhmali Kulinga. Probably *Gomphrena globosa.* — Velvety Kulinga; red colour; large round flower; sown in June; flowers in November: remains in flower three months; no smell.

11. Tukhma. S. — Red flower; sown in Asad (Oct.) flowers in November.

12. Chuka. P. *Oxalis?* — Used when green as a vegetable; said to have a sour taste; sown in Nov. flowers in April.

13. Gul-i-khairu. P. — Holly hock.

14. Gul-i-ajab. *Hibiscus Mutabilis.* -- Sown, in Phagun (March); flowers in November, or should it fail then in the following March.

15 Gul-i-shuma. — Sown in March; flowers June -- October.

16. Tali. S. *Dalbergia Sisoo.* Roxb. -- Large legume bearing tree; flowers in April; seeds scarcely ripe yet (19 June) Sown in Sawun (August) becomes a large tree in 12 years if freely supplied with water; timber exellent; specimen sent.

17. Kachnar. *Bauhinia variegata.* — Sown in August; a large and handsome tree; leaves doubly heart shaped. (See drawing) timber not useful. Seeds used as a vegetable and pickled.

18. Suhanjily. — Also a large garden tree; seed used as above. Sown in Phagun, flowers in three years and attains a good height. It is probably different from the Hyperanthera moringa, though the native names (subhanjana and suhanjila) are nearly alike.

Basket No. ix. miscellaneous garden and wild seeds, many of them duplicates, collected in Buháwul Khán's country, and between Mithunkot and Dera Gházi Khán.

Catalogue of specimens of Timber in common use along the line of the Indus.

1. Ber. *Zizyphus jujube.* — General carpentry and building. At Ghora Bari for ship building. Tree said to attain a height of forty to sixty háth, and a girth equal to the span of three men. Best trees I saw were at Ludwana (on road from Hydrabad to Khyrpúr) but none of them reached this magnitude.
2. Timmer. —Used in building for ships knees found at Ghora Barí. Size not well known.
3. Vellaiti Kikur. -- Variety of Babool (Acacia) found abundantly near Chachur. I am told it reaches 60 háths in height and 2 yards in girth, but I never saw this.
4. Karor. — Ghora Barí. Used for house building, rafters ; seldom attains a greater scantling than specimen sent.
5. Kye. — Tamarisk every where through Sindh. Attains a height of 12 háths (18 feet) and squares to 18 inches. Used for house building, ship building and firewood.
6. Kuril. — The caper tree or rather bush; sometimes so gross as to square to 12 inches or even upwards; used for building, also turned into wooden mortars for pounding bang in.
7. Tali. *Dalbergia Sisu.* Roxb. — The most useful timber in Sindh ; grows to 40 háths high and 2 men's span in girth. Used for shipbuilding, houses, furniture, stamps for printing cotton, and I have no doubt, would answer for common wood engravings.

2.

General Remarks on the remedial effects of the extract of Ganja as observed at the Native General Hospital at Bombay ; forwarded with two cases of Tetanus, treated in that Institution. By A. Graham, Esq.

Although one of the two accompanying cases terminated fatally, yet the good effects of the remedy were so manifest throughout the patient's illness, after his admission into hospital, in the mitigation by him experienced of his extreme sufferings, that I am happy in being able to say,that in severe cases of the disease, and under circumstances similar to the present, where a cure is not to be effected, from the patient not applying early, that yet, as in the case before us, the transit to the grave may be greatly smoothed, by the disease being in some degree stript of its most formidable characteristics ; and I am of opinon, that had this man applied earlier, and before he became so much worn, and exhausted, that a still more happy result would have followed the use of the extract of Ganja in his case. Its effects on the vascular system in calming, reducing, and then sustaining uniformity in the circulation have been obvious, and this quality, as manifested in the successful case, deserves particular attention. The remedy would seem to possess properties of a sedative, anodyne, and anti-spasmodic nature combined.

The remedy has likewise been used in small doses in rheumatism, in its

various forms, in combination, and would seem to add to the good effects of the other medicines; particularly in cases, where the patients have been addicted to the previous use of intoxicating liquors, or stupifying drugs, and in febrile cases, where the circulation was much disturbed, and where high nervous excitement existed. — Combined with diaphoretic medicines, it seemed to assist in cutting short the disease. — It does not confine the bowels, and I incline to think that it rather disposes them to be moved than otherwise.

Case 1st. — *Lacerated Wound.* — Dugreah, boy, admitted 15th February 1841; aged about 13 years. Whilst in the act of getting off a cart yesterday, the Bullocks took fright dragged on the cart, and his right leg, came in contact with the outer edge of one of the revolving wheels, which lacerated the integuments, and superficial muscles, to a very great extent, from below the knee anteriorly, and along the outer leg, to near the instep; wound, is very painful; feels chilly. ℞ Mist. Camph. ℥i. Spt. Æther. Nitros. m. xx. Vin. Ipecacuanh. m. xxx. Tinct. Mur. Morph. m. xx. m. bis n. s. ℞ Hyd. c. Creta gr. v. Pulv. Ipecac. Comp. gr. v. in pil. nocte s. Diet, congee and milk.

16th. — Surface warm; some swelling in the leg, and much pain; tongue white, moist. ℞ Mist. Camph ℥i. Spt. Æther. Nitros. m. xxv. Vin. Ipecac. m. xxx. Sol. Ant. Tart. ℥ii. m. ter in die s. ℞ Hyd. c. Creta gr. iii. Pulv. Ipecac. Comp. gr. v. in pil. bis die s. Lot. Frigid. ad. p. d. 6. p. m. *Vesp.* Capt. Solut. Ant. Tart. ℥ii. Spt. Æther Nitros. m. xx. Soda Tartarizat. ℥ii. m. s. s. 10 p. m. ℞ Sol. Ant. Tart. ℥i. Spt. Æther. Nitros. m. xx. m. ter nocte s.

17th. — Had violent fever last evening, and great increase of pain in the wounded leg. These symptoms are greatly lessened since, but the knee joint is swollen, hot, tender and painful. Bowels not moved. Hirud. xxiv. ad. genu. dolent. Lot. frigid post. ℞ Calomel gr. v. Pulv. Jalap Comp. ℥i. Aquæ Puræ ℥i. m. stat. s. *Vesp.* Capt. Statim. Sol. Ant. Tart. ℥ii. et omni 3tia. hora. Repet. ℞ Hyd. c. Creta. Pulv. Ipecac. Comp. āā gr. v. nocte s.

18th. — As at last report. Hirud. xxxvi. ad p. d. Genu. ℞ Sol. Ant. Tart. ℥i. Vin. Ipecac. m. xx. Spt. Æther nitros. m. xx. m. ter in die s. Catapl. ad ulcer.

19th. — Had a violent fit of fever last evening, with increased pain in the wounded limb, all of which have since been relieved. Skin nearly of natural temperature; bowels open; pulse quick. The bruised integument along the wound has begun to slough. ℞ Hyd. c. Creta. gr. v. Pulv. Ipecac. Comp. gr. vi. in pil. bis die s. Cont. med. Diaphoret. ter indie. Cont. Catapl. *Vesper.* ℞ Mist. Camph. ℥i. Vin. Ipecac. m xxx. Spt. Æther. nitros. m. xv. Tinct. M. Morph. m. x. m bis noete s.

21st. — Wound less painful, sloughing process going on. Has evening fever; bowels regular; appetite good. ℞ Quininæ Sulphas. gr. iii Decoct. Cinchon. ℥ii. Acid. Sulph. Aromat. m. v. T. M. Morph. m. xx. ft. ter die s. (at 7, 11, and 2 o'clock.)

22nd. — Feverish this morning, makes no complaint; bowels free. ℞ Liq. Acet. Ammon. ℥iv. Mist. Camph. ℥i. Spt. Æther. Nitros. m. xx. Tinct. M. Morph. m. x. Vin. Ant. Tart. ℥ss. m. ter in die s.

23rd. — Free from fever this morning; pulse quick; bowels regular; ulcer suppurating, and granulations rising; complains very little. ℞ Mist. Camph. ℥ii. Quininæ Sulph. gr. i. Spt. Æther. Nitros. m. x. m. ter die sumend.

24th. — Lot. S. Cupri ad ulcer. Cont. med. ter die. ℞ Hyd. c. Creta gr. v. Pulv. Ipecac. Comp. gr. vi. Ext. Hyosc. gr. ij. in Pil. h. s. s. *Vesp.* Omit. pil. gargar, pro ore.

25th. — Gums tender ; sore granular ; surface very extensive ; general irritation diminished ; bowels regular. Cont. med. Tonica bis in die s. *Vesp.* Complains of some stiffness in the jaws with a little pain, and some inability to swallow ; does not now complain of his gums, or teeth ; bowels free ; ulcer very extensive, but clean and healthy looking. Fotus p. d. ℞ Pulv. Ipecac. Comp. gr. x. Ext. Hyoscyami gr. iij. in pil. h. s. s.

26th. — As last evening. Linimt. Stimulans. Infric. p. d. — ℞ Pulv. Ipecac. Comp. gr. x. Pulv. Ipecac. gr. i. in pil ii. bis die sumend. *Vesp.* Infric. ungt. Hyd. Comp. ʒi. Opii. gr. v. Femor.

27th. — Stiffness of jaws continues, and has rather increased ; has an altered expression of face ; bowels open ; pulse 80, soft. ℞. Pulv. Ipecac. Comp. gr. vi. Pulv. Ipecac. gr. i. Ext. Hyoscyami gr. iii. in Pil. bis die sumend. Cont. Infric, &c.

28th. — Stiffness of jaws continues, and is gradually increasing ; forehead corrugated, and expressive of anxiety ; bowels twice moved yesterday ; pulse the same ; ulcer not troublesome, and healing ; skin cool, and soft ; pulse 80, when quiet, 120 on exertion. ℞ Calomel gr. iii. Pulv. Ipecac. gr. ii. Pulv. Jacobi gr. ii. Ext. Opii. gr. i. in pil. bis die s. Cont. Infri. Lint. Hydr. u. a.

March 1st, 7 A. M. — Spasm of jaws continues, and is increasing gradually ; has now considerable rigidity of the muscles of the neck, with some pain at the nape ; pulse continues at 80, when quiet, but on getting from the horizontal to a sitting posture is accelerated to 120 ; skin soft, and cool ; ulcer causes him no trouble ; bowels open ; voids his urine frequently, and freely. ℞ Ext. of Hemp gr. i. omni 2da. hora, s.

2nd. — Took 12 grains of the Hemp extract during yesterday, and last night, without expressing himself benefitted or relieved ; the symptoms do not seem to have increased any since last night. Continue medicine.

3rd. — Took 27 grains of extract since yesterday ; has been under its narcotic influence in a high degree ; twitchings come on in the back, and produce great suffering ; distortion of countenance continues ; bowels moved once in twenty-four hours ; passes urine seldom, and but scantily ; pulse has been at about 90 since last report.

4th. — Has taken 26 grains of extract since yerterday; symptoms as then detailed ; slept badly at night, but had intervals of repose during the day ; pulse 90 ; skin warm, and clammy. Continue medicine.

5th. — Slept a good deal yesterday at different times, but passed a sleepless night ; complains of giddiness and stupor ; twitchings less frequent, or severe ; — jaws rigid, and protrudes the tongue with difficulty, and then only partially ; tongue moist, white ; pulse the same ; ulcer healthy ; 30 grains of extract given since last report. Continue the medicine in 3 grain doses every hour. Food.

6th. — Has taken 24 grains of the Hemp since last report ; spasms more severe this morning, and severe opisthotonos present ; bowels not moved ; takes conjee ; pulse 70 ; alseep ; calm ; skin clammy, cool. Continue medicine. Soup.

7th. — Has taken 39 grains of the extract since last report, the rigidity returns with severity when the effects of the medicine seem to wear off a little with convulsive twitchings of the back, and nape ; corrugation of forehead, and

distortion of face less ; has much desire for food ; protrudes his tongue more, and with freedom, which is white, and rather dry ; bowels not moved ; voids urine seldom; skin cool, and clammy ; pulse calm, soft, and about 80. Continue medicine. Enema Purgant Tereb. Soup.

8th. — Has taken 35 grains of the extract since last report ; great stiffness of the jaws and muscles of the back and neck ; bowels not moved. Continue medicine.

9th. — 20 grains of the extract of Hemp taken since last report ; rigidity of muscles generally continues very great, and twitchings also continue but are lighter ; bowels once moved by a Turpentine enema; protrudes the tongue considerably, but with difficulty ; pulse 80 ; appetite good ; slept last night. Continue medicine.

10th. — Took 39 grains of the medicine since last report ; expresses that he feels himself better this, than any morning as yet ; opisthotonos, and twitchings much better ; bowels open ; appetite good ; jaws stiff; muscles of abdomen still tense, but rather less so then before ; pulse the same. Continue medicine u. a. (grain vi. stat.)

11th. — Has taken in all 51 grains of the medicine since last report, and is under its narcotic influence in a high degree ; twitchings not so frequent ; protrudes his tongue more ; expression of countenance more natural whilst asleep ; soon relapses into his stupid sleepy state when left alone, after being roused ; abdomen less rigid ; no medicine. Full diet.

12th. — Took none of the extract all yesterday, but the symptoms returning with their former severity, recourse was again had to the medicine, and 15 grains were given during last night ; slept little ; has two or three spasmodic twitchings in an hour ; bowels not moved ; is now drowsy. Continue extract grains iii.

13th. — 32 grains of the extract given yesterday; continues in much the same condition ; bowels once freely moved without an enema ; pulse about 70 at all times. Continue medicine.

14th. —Took 24 grains of the medicine since last report ; passed an easy day, but had a restless night ; bowels opened once ; pulse the same ; complains of pain in the nape of neck this morning ; ulcer healing ; countenance more anxious. Continue medicine.

15th —39 grains of extract taken since yesterday ; bowels opened once since Is in all respects in nearly the same state. Continue medicine.

16th. — 21 grains of the medicine given since last report ; symptoms continue the same ; but complains of his nape more this morning ; the muscles here are stiff and tender on pressure ; bowels opened daily naturally. Continue medicine. Fotus ad nape.

17th. — 42 grains of extract given since yesterday ; muscles of the neck stiff; opens his mouth more, and feels generally better ; bowels natural. Continue medicine.

18th. — 42 grains of the extract taken since yesterday ; goes on improving ; bowels act naturally ; pulse regular ; appetite good. Continue medicine Fomentations and warm liniment to be rubbed into nape and back.

19th. — 42 grains of extract taken since last report ; symptoms gradually yielding ; muscles of nape still stiff and tender ; appetite great ; bowels act naturally. Continue medicine.

20th. — 36 grains of extract given since last report; goes on improving steadily. Continue medicine.

21st. — As last report : the same quantity of extract given since yesterday. Continue medicine.

22nd. — 3 grains of the extract only given since last report ; does not seem to feel the omission of the medicine, and continues expressing himself better ; complains only of stiffness, and soreness in his neck, on standing erect (which now he can do) the abdominal muscles become rigid : has a voracious appetite for food ; bowels open ; liniment and fotus to nape, &c.

23rd. — Took last night 6 grains of the extract, he did not complain more than usual yesterday ; but the muscles appeared a little more rigid when standing erect ; ulcer discharging freely, and healing ; surface granular, and still extensive ; bowels regular. Lot. Zinci. Sulph. (gr. vi. ad ʒi. Spt. Lav.) *Vesper.* Rept. med. gr. vi. h. s.

24th. — As last report. 25th — Had none of the extract yesterday, and did not seem to miss it ; slept well ; bowels natural. 26th. — As yesterday. ℞. Decoct. Cichon. ʒii. ter in die sumend. 27th. — Ulcer healing slowly ; surface healthy, and granular ; edges indolent rather. Continue medicine. 29th. — Doing well. Continue medicine. 31st. — Doing well. Continue medicine. *April* 1*st.* — Ulcer healing. Continue medicine. 5th. — Idem. 10th. — Idem. 16th. — Convalescent. Omit Cinchonæ. Contin. Lot. Zinci. Sulph. c. Spt. Lavand. ad. ulcer. 21st. — Free from complaint. Discharged.

Case 2nd *Tetanus Traumatica.* — *March* 2nd. — Ramah Soortee, a thin spare man, admitted labouring under violent Tetanic spasms of the whole body, neck, and limbs, with great rigidity, and stiffness of every part, but, of the left leg and foot in particular, which are greatly curved, and the toes drawn downwards ; jaws firmly closed, so that scarcely can the edge of a thin iron spoon be introduced between them ; pulse 150 ; surface clammy ; and the neck, and shoulders, bedewed with clammy moisture ; has aggravation of the spasms on attempting to swallow liquids, which alone he can take, but, with much difficulty and suffering on the occasions. — These symptoms first appeared three days ago, and originated in a puncture on the sole of the left foot, from a nail, nine days ago ; bowels not moved, and no urine voided the last two days ; during which period he has taken no food ; sleeps none ; and has twitchings at short intervals producing opisthotonos ; great thirst ; countenance distorted. ℞. Extract Hemp gr. v. Spirit. Rectific. ʒi. m. stat. Repeat the Ext. Hemp. gr. iii. every second hour. Enema Terebinthinæ.

3rd. — 6 a. m. Has taken since 3 p. m. yesterday, 21 grains of the extract ; can open his mouth a little now, and has obtained snatches of repose, and ease ; symptoms though a little mitigated, are all still present ; pulse 120. Continue medicine.

4th. — Has taken since 6 a. m. yesterday, 47 grains of the extract with some further benefit ; can now protrude his tongue with ease ; and there is less general spasm, or rigidity ; can take conjee ; pulse 120 ; tongue excited ; has slept a good deal at intervals ; bowels moved by a terebenthinæ enema, and has voided urine ; complains of great thirst. Continue medicine.

5th. — Has taken since yesterday morning 23 grains of extract of Hemp ; complained all day of giddiness, and could not keep his eyes open ; had more frequent twitchings, which were very severe ; perspired about neck, face, and

chest, profusely ; toes of the right feet curved and drawn downwards ; those of the left feet drawn upwards on the dorsum of the foot ; bowels moved last night ; pulse has since yesterday's report been about 124, firm ; feels appetite, and takes food ; cannot this morning open his jaws widely, or with the ease of the last two days ; on the least exertion, the muscular twitchings annoy him ; countenance anxious ; skin warm, and clammy.

6th. — P. M. Has up to this hour taken 46 grains of the medicine, which induces lethargy, (from which he is however easily roused) and relaxation of the spasms in a great degree, with diminution of the frequency, and severity of the convulsive twitchings, which begin in the left foot, and extend upwards, along the back ; can again protrude his tongue with great freedom ; has no inclination to take food, and cannot be easily induced to do so, seemingly from inability to swallow easily ; pulse smaller, 120 ; skin clammy ; bowels have been moved, and has voided urine ; looks very much exhausted, and emaciated ; breathing short, and hurried.

10th. — P. M. No change took place up to this hour when he died : Had not taken any more of the medicine, and refused soups, or conjee.

3.

Extract from the Annual Report of the sick in Hospital of the 10*th Regiment, N. I. Stationed at Aden, for* 1840. By C. Black, Esq.

Presented by the Medical Board, April, 1841.

General Observations — The prevailing diseases in the 10th Regiment. N. I. during the year 1840, have been scorbutus, fever, rheumatism, and ulcers, Of these, the cases of scorbutus, and the ulcers have been by far the most obstinate and difficult to treat. Since the period of my receiving medical charge of the Regiment, eleven men have died from different causes, but in each, with the exception of Quire, the Quarter Master Serjeant, the disease was more or less complicated with scurvy. Previous to my arrival at Aden, the deaths amounted to 41 and by the last accounts from Bombay, 33 of those sent away sick, are reported to have died, either during the voyage or after their arrival at the Presidency, making in all, 85. From the reports already forwarded, it will be seen that the admissions were most numerous during the hot weather, and gradually began to diminish as the cold season advanced, when the roads being open, fresh vegetables were procurable in the bazar. More cases of scurvy having been admitted, than of any other disease, and that likewise having proved the most fatal in the 10th Regiment, though it is not named as one of the diseases, on which the medical officer is expected to report. I shall first give a sketch of the chief symptoms presented by it, and of the manner in which they were treated.

Scorbutus. — The patients affected with scurvy, first began to complain of tenderness of the gums, with loss of appetite and debility, but did not generally apply for admission to hospital, before sloughing had commenced with ulceration and oozing of blood ; in many cases the gums became so much swollen, as to

cover the teeth, and completely prevent the possibility of chewing. The cheeks likewise become swollen : as the disease advanced the patients began to complain of pains in the extremities ; especially stretching, along the shin bones, with swelling of the ankles, and stiffness, of most of the larger joints. Large dark colored blotches appeared on different parts of the body, and occasionally vesications, which on being ruptured were seen to contain a fœtid fluid, having the appearance of decayed blood, and the skin underneath was found to have mortified. On the removal of the slough a deep cavity was left, the edges of which soon became hard and elevated, with the surrounding margin of a livid color, very tender on pressure. The sores thus formed were attended by so much pain as totally to prevent sleep, and the gentlest touch on the surface of them, was followed by an oozing of blood. In the scorbutic cases, the sligtest bruise, was followed by sloughing and ulceration, and this sometimes spread with so much rapidity, as soon to endanger the life of the patient. The large ulcers were accompanied by more or less of constitutional irritation, such as frequent rigors, and profuse sweats. Death was usually preceded by œdema of the lower extremities, and in some cases the whole body became anasarcous. The termination was generally very sudden. The patient in the morning presenting no unusual symptom, would in the course of the day be seized with great difficulty of breathing, the pulse at the wrist become almost imperceptible, and the extremities cold. In five, or six hours life became extinct. In the few cases in which an examination of the body could be obtained, nothing was discovered to account for the symptoms, but a slight effusion into the pleura and pericardium, with congestion of the lungs posteriorly.

Notwithstanding the constant use of lime juice, sugar, beer, and arrack, with different tonic medicines, no favourable change was observed in the scorbutic cases, until about the end of October, when the bazar began to be supplied with fresh succulent vegetables from the interior, which were liberally dispensed in hospital ; then a decided improvement was observed, and by the middle of December, the disease had almost entirely disappeared. Charcoal poultices were applied to the ulcers till the separation of the slough, when the sores, after being washed with solution of chloride of lime, were dressed with resinous ointment, or lint dipped in turpentine, and when the granulations assumed a healthy appearance, they were touched daily round the edges with sulphas cupri, or nitras argenti. During the day to allay pain, large doses of opium, combined with camphor were repeatedly administered, and strong narcotic draughts was given at night to induce sleep.

This treatment has been persevered in since the period of my receiving charge, and though very tedious, it has proved eminently successful, most of the ulcer cases admitted having been dismissed cured, and those at present remaining in hospital presenting a healthy appearance.

Fever. — The remittent form of fever has been the most prevalent at Aden, but the cases of it have been of a very mild description, presenting no unusual symptom, and seldom requiring to be kept in hospital more than 10 or 12 days, The treatment was similar to that usually adopted in India.

Rheumatism. — The most common form admitted into hospital, has been of a sub-acute character, presenting little or no appearance of inflammation, pulse generally small and weak ; skin cool : the treatment that appeared to benefit

them most consisted of mild diaphoretics, accompanied by stimulating frictions, and the occasional application of a blister, attending at the same time to the state of the bowels. Tonics such as gentian combined with quinine, were given to complete the cure.

4.

Extract from the Second half yearly Report of the Oculists Department for 1840. By M. Stovell, Esq.

Presented by the Medical Board, February, 1841.

Purulent opthalmia. — During a part of the monsoon purulent and catarrhal opthalmia prevailed to a considerable extent, but generally in a mild form ; a few cases however of a very severe purulent opthalmia presented themselves and afforded me more opportunities of appreciating the very beneficial result of Mr. Tyrrell's method of treatment which I detailed in my first half yearly report.

The Board will perhaps allow me to allude to one case in particular, both because it afforded under peculiar circumstances satisfactory evidence of the success of his mode of treatment, and because it occurred in a patient of Surgeon Montgomery of the 1st Battalion of Artillery, who was I believe fully convinced of the claims to attention which the treatment alluded to demands.

On August 12th, Corporal Jennings of the 1st Battalion of Artillery, was admitted with purulent opthalmia in both eyes in a mild form ; the usual routine of treatment was adopted but without any improvement, and on the 14th he was attacked with delirium tremens which increased in violence, rapidly ; the purulent inflammation in his right eye also assumed a violent character and increased in intensity till the 16th, at which time the upper lid was enormously swollen and of a florid color, there was considerable deposit in the cellular tissue beneath the conjunctiva producing chemosis to such an extent that it considerably overlapped the margin of the cornea, the purulent discharge was abundant and yellowish, and the cornea had partly lost its brilliancy, and to a small extent was hazy, it was evidently beginning to lose its vitality from the arrest of its arterial supply. The delirium tremens continued severe. Doctor Montgomery and I atended him together :—his constitutional state would not admit of depletion and the cornea of his right eye was just in that state in which it would certainly have sloughed out in a few hours, had nothing been done to arrest the progress of the disease, and to restore the circulation in the conjunctival vessels supplying the cornea which had been arrested by the deposit in the cellular tissue beneath the conjunctiva, where it is so firmly bound down over the junction of the cornea and sclerotic. It was an excellent case for testing the efficacy of Mr. Tyrrell's treatment, I therefore with the view, on his principle, of restoring the circulation in the vessels alluded to made eight deep incisions with an extraction knife through the chemosed conjunctiva, commencing at the margin of the cornea and carrying the knife backwards between the attachments of the recti muscles, between each of which I made two incisions. The result was very satisfactory ; in the evening of the same day the haziness of the cornea had nearly disappeared, and on the following day, the 17th, the eye was

considerably less inflamed; the chemosis was much reduced in extent and the discharge much diminished From this time the eye rapidly improved. On the 21st there was neither chemosis nor discharge; and by the 24th, so rapid had been the change to healthy action that the eye was perfectly free from inflammation. I consider the result of this case as a strong proof of the correctness of the pathological views on which Mr. Tyrrell founded his treatment, and I believe that the eye would certainly have been lost, had his treatment not been adopted.

The same treatment was resorted to with success in the case of Havildar Sewdeal Sing of the Golundauze Battalion, another patient of Surgeon Montgomery, but as there was no peculiarity in this case, I will not trouble the Board by enlarging on it.

5.

Case of Hydrophobia.

Presented by the Medical Board.

On Sunday the 8th of August, 1841, at half past 10 o'clock A. M. I was informed by Lieutenant ————, that ————, (then out with a hog-hunting party at Serulgaon, about sixteen miles from Ahmednuggur) had evinced symptoms of Hydrophobia the evening before, and no time was lost in dispatching Assistant Surgeon ————, with a palankeen to his aid.

On his arrival at Serulgaon, Mr. ————, found the patient labouring under great mental depression, intense thirst, prostration of strenght, and occasional intense nervous excitement; surface cool; pluse full and frequent; great anxiety and restlessness, with freqent recurrence of violent spasms in the muscles of the throat preventing deglutition, and brought on by exposure to cool air, the sight of fluids, or the sudden approach of any person towards him. After considerable delay and difficulty, twenty-four onnces of blood were abstracted from the arm, and about our drachm of Tinct. Opii was swallowed, having been previously dropped on dry toast, and after most excruciating suffering from spasms, caused by placing him in the palankeen, he reached Nuggur at half past eleven o'clock on Sunday night.

On his arrival, I found him perspiring profusely from every pore (the surface being only naturally warm) pulse 98, soft and regular; and he was perfectly free from all spasmodic action, but, an attempt to remove him from the palankeen, in which he dreaded suffocation from the heat, brought on an immediate return of his sufferings and it was utterly impossible to relieve him without causing an intense aggravation of the spasms.

At 2 A. M. succeeded in getting the occiput shaved, and half an ounce of the liquor lyttæ well rubbed in over that part, the back of the neck, and fauces; he was also able to chew and I believe, to swallow, twenty grains of calomel and five grains Ext. Opii mixed up with crumb of bread. He seemed tranquil for one hour after the exhibition of this medicine, and then expressed a strong desire for tea which I had prepared immediately and with the hope of enabling him to swallow it, gave him a silver tube to suck the fluid through. Having

previously blindfolded him at his own request, he continned to converse with me for nearly two minutes, inhaling the air through the pipe all the time, when, without the possibility of his seeing the fluid, or having any intimation of its proximity, it was cautiously brought towards him, with the intention of immersing the lower end of the tube in it ; but when the cup containing the tea approached within a yard of him he uttered a terrific shriek, and fell back on his bed, in one of the most awful paroxysms of spasm I ever witnessed. A repetition of the attempt to bring any fluid near him, produced a similar result, and deeming it cruel to cause a renewal of such agony, all further trial was abandoned.

From this period until 6 A. M. he remained comparatively tranquil, but, at a quarter past six he was seized with a return of the spasms in his throat in an aggravated degree, and his sufferings were dreadful. To add to his unhappy state, any attempt to approach or aid him, seemed to increase his agony, and with very short intermissions, he remained in the state described until 8 o'clock, when he appeared completely exhausted. During an interval of apparent ease, a pint of highly concentrated sheep's head broth with an ounce of Laudanum mixed was thrown up the rectum at 9 A. M. and retained, but afforded no relief: the spasms (now extended to the stomach) returned with tenfold violence, hands and feet became deadly cold, the whole body was covered with a profuse clammy sweat, and pulsation could no longer be felt at either the wrists or temples, and after tossing about in excruciating torture for an hour, with three intervals of ease, only, of a few seconds duration each, he expired at 10 o'clock.

During the entire period of my attendance viz. from half past 11 P. M. on Sunday till 9 A. M. on Monday, the poor sufferer was perfectly rational, and clearly detailed the history of his case, which is briefly as follows :—About six weeks ago he made an attempt to tame a young jungle dog, but the animal having become excited and bitten a tame dog of his own, Mr ————, wished to muzzle the wild animal and while trying to do so, was bitten in two or three places in his left hand ; having used the precaution of soaking the parts in hot water, and pencilling the wounds freely with argent. nitrat, he thought no more of the matter, until the tame dog evinced symptoms of madness, although the wild one shewed no sign of disease. From that hour, a dread of rabies preyed more or less on his mind, and in the hope of getting rid of the unpleasant feelings the occurrence had given rise to, he rode into Nuggur from Aurungabad, a distance of 75 miles in one day, to join a hog hunting party then about to start from this place. For two days after his arrival he felt unwell and listless, but persisting in his intention of joining the sport, he proceeded to Serowlee on Saturday, and the same evening felt the approach of his fatal malady, and communicated his fears to Lieut. ————.

6

Case of extensive Tubercular deposition over the convex surface of the Brain, with softening of the left hemisphere, and slight serous effusion into the lateral Ventricles. By J. Murray, Esq.

Presented by the Medical Board.

————, aged two and half years, of fair complexion and light hair, is reported to have had rather delicate health from his birth, but never to have

had head symptoms. During dentition he was affected with a variety of cutaneous diseases; he always slept badly at night; and throughout last monsoon at Bombay, he suffered from abdominal derangement with boils, which reduced him very much in flesh and strength: and in this state he arrived at this station (Malcolm Pait) in October, 1840. In the course of the three following months, he recovered with surprising rapidity; and from having been a pale, sickly looking emaciated child, he acquired a clear florid, healthy complexion, became extremely spirited and active, but inclined to spareness of flesh rather than the reverse.

In this state of health he went out for his evening walk at 5 o'clock on the afternoon of January the 7th 1841. When he returned at 6 o'clock, he complained of a little pain of forehead and in a minute or two fell asleep on a chair. He was awoke, but refused his supper, at half past six he complained of pain in his stomach and soon after vomited. Frequent draughts of tepid water were given to him, and during the two following hours he vomited repeatedly and freely, and discharged his dinner undigested, with which were mixed some scarlet substances resembling the husks of berries; but the vomited mattter was not kept.

At 9 o'clock, when I first saw him, he lay in a state of stupor for ten or fifteen minutes at a time, then started up screaming and restless for two or three minutes, and again relapsed into the same lethargic state. There was a cold damp moisture on the face and forehead, with pallor and puffiness of the face and eyelids; the soles of the feet were hot, and the rest of the body of natural temperature — tremors of the hands, frequent grinding of the teeth, and occasional vomiting and thirst. The pulse was 130 rather below than above the natural strength, but there was strong action of the heart, respirations 36 and stertorous; pupils alternately dilated and contracted. After having been asked several times if he had any pain, he pointed to his mouth (tepid bath, large dose of calomel, blister to nape of neck) at midnight the pulse had fallen to 65 and intermitted; respirations had risen to 60; there was a tendency to coldness over the body generally, occasional transient flushing of the face, but still accompanied with coldness and clamminess of the cheeks. Alternate dozing and jactitation, with grinding of the teeth; the swelling of face had quite subsided, and the thirst had ceased. He appeared to be sensible, except for a minute or two after waking when he talked incoherently (small doses of Spt. ammon. aromat.)

Towards morning of the 8th, the pulse gradually rose to 120; the skin regained its natural heat, and the screaming and jactitation diminished. In the course of this and the two following days, the pulse fell gradually again to 70 or 75, and intermitted, but was of natural strength; the respirations reduced to 28 or 30, but free from stertor; he continued in a state of somnolence, with the eyes half shut, and a natural appearance of pupils, but awaking with restlessness and tossing of the head. Countenance more natural; he seemed sensible, but did not answer questions, and never spoke, except to ask for water, the thirst being at times rather urgent. On the 9th the skin having become rather warmer than natural, two leeches were applied to the temple, but with rather unfavourable effect: blister to the head, a grain of calomel every three hours, repeated mercurial and other purgatives, and enemas, and cold applications to the forehead when the temperature admitted of it.

On the 11th, the pulse ceased to intermit, and on the 12th he first answered questions, and from that date till the 16th there was a gradual amendment. His principal symptoms were extreme fretfulness, laying with the head thrown back, and screaming when he was turned in bed, frequent winking of the eyes grinding of the teeth, and picking of the nose. His pulse varied from 120 to 130 and he had a good deal of thirst; up to this time, he had scarcely lost flesh and his bowels were easily regulated (purgatives frequent small doses of carbonate of soda which had always an immediate beneficial effect in soothing him, and allaying thirst, &c.)

From the 16th to the 26th (when in consequence of my indisposition, he was attended for some days by my assistant apothecary and afterwards by Dr. Ranclaud) he suffered at some period of each day, but at irregular hours, from febrile heat of skin, quickness of pulse, extreme restlessness, and thirst, and the bowels for the first time became very much disordered. His mouth was at this time affected by mercury. For these symptoms repeated purgatives, salines and a few small doses of quinine were given.

On the 26th when I saw him again, I found that he had emaciated considerably. He had lost the feverishness, but he was extremely fretful. could not bear to be moved, slept indifferently, lay with the head thrown back, had frequent and rapid winking of the eyes, his countenance was pallid and pinched, and he had little or no appetite. His pulse varied from 120 to 130 and the alvine evacuations were extremely dark and adhesive.

From the 26th to the 5th February, he again improved ; his bowels became perfectly regular, and his appetite somewhat increased ; but he continued irritable ; his pulse rather quicker and smaller than natural ; he did not rally in flesh or strength, and he seldom spoke except to ask for drink.

On the morning of the 5th he was observed to be speechless, but moved his arms and head, appeared to be sensible, and swallowed tolerably well. His countenance was not altered. His pulse 120 and weak ; respiration 36 easy. Skin of natural temperature, frequent opening and shutting of the eyes, and occasional grinding of the teeth. Blister to nape, mustard sinapisms to feet, enemas, beef tea and ammonia. &c.

On the 6th at 3 P. M. spoke twice and from half past 8 till 1 P. M. he was in a state of coma, with an almost continued succession of convulsive paroxysms, affecting the muscles of the right eye, right side of mouth, throat, and right arm and hand, with a scarcely perceptible pulse, and a loud mucous rattle in inspiration ; the features were sharpened, but complexion not livid ; the skin retained its natural temperature, and the head was covered with a copious perspiration. During the whole of these four hours and a half he appeared quite moribund. At first he turned round and called out twice or thrice, as if endeavouring to call some one, the convulsions suddenly ceased, and he became quiet and slept occasionally during the afternoon.

7th. Was quiet and sensible and took a good deal of nourishment. On the afternoon and evening of the 8th he had several convulsive twitchings similar to the former ones but slighter and of shorter duration, each subsiding suddenly. About midnight became comatose with slow stertorous breathing. At daylight on the 8th coldness of both feet and of the right arm supervened, and he expired at 5 P. M. without a struggle.

Inspection 14 *hours after death.* On removing the dura mater, the whole convex surface of both hemispheres of the brain was studded with opaque yellowish white, homogeneous, unorganized, flattened patches of varied form, but principally circular, and varying from the size of a six-pence to that of a half crown piece. They were about an eighth of an inch in thickness in the centre and became gradually thinner towards the border, and were in general largest in size over the spaces between the convolutions. These (tubercular) deposits were externally of a cheesy consistence, internally they were partially softened, the more fluid portion exactly resembling healthy pus, which was mixed with small portions in a state intermediate between a solid and a fluid. The patches were situated between the arachnoid and pia mater, to the former they adhered very closely, from the latter they were easily separable. When separated from their attachment, they appeared to have very slightly compressed the cerebral substance, no granular deposits could be discovered in any part.

The pia mater was minutely injected but there was no deposition of lymph or serum, and not the slightest opacity or thickening of this or the other membranes. A great portion of the medullary substance of the left hemisphere (not involving the corpus, callosum) was considerably softened. Consistence of the right hemisphere natural. About half an ounce of limpid serum in the left ventricle and about two drachms in the right. No morbid appearance in the base of the brain or in the cerebellum.

The stomach was found healthy. Circumstances prevented the further prosecution of the dissection.

Remarks. The sudden accession of vomiting with the discharge of some scarlet substances resembling the husks of berries, followed by stupor, from which the child could be roused to imperfect consciousness, pallor and swelling of the cheeks and eyelids, with coldness and clamminess, first on the face and forehead and subsequently of the body generally, tremors of the hands, apparent uneasiness of the mouth or throat with a slow, weak intermitting pulse, and stertorous breathing; these symptoms occurring without any precursory signs in a child of a clear and florid complexion, but of a spare habit, gave reason to apprehend that he had ate some of the poisonous red berries of the Solanum Giganteum, which grows here in considerable abundance.

The existence of such extensive tubercular deposition on the surface of the brain, as dissection revealed, probably explains the tendency to depression of the vital powers, which marked the commencement and indeed the whole progress of the disease : for even when there was a reaction, it was action without power, as was evidenced by the effect of a small leeching, and still more by the immediate effect of cold lotions in chilling the head when heated.

Whatever opinion may be formed as to the period at which the cerebral softening commenced, there can be little doubt, I think that the tubercular disease was a chronic affection, and was of many months (probably upwards of a year's) duration. Its presence may perhaps account, in some measure, for the general delicacy of constitution, the successive cutaneous affections, &c. with which the child had been affected from birth, though it is difficult to account for the excellent health, which he enjoyed for the two or three months immediately preceding the fatal attack.

What was the proximate cause of this sudden attack? Was it compression of the brain by the tubercles? Had such been the cause, would not the accession have been more gradual? was it not rather the softening of the cerebral substance?

The formation of the tubercular masses seems to have been unaccompanied by any inflammatory action. This appears to be proved, partly by the absence of head symptoms during all the former illness, but principally by the entire absence of any deposition of serum, or lymph in their neighbourhood and of any milkiness, opacity, or other lesion of the arachnoid or pia mater. The minute injection of the latter, without the loss of its transparency, may presumably be dated from the accession of convulsions three days before death.

The large size of the tubercular masses, most of which were in a state of transition from crudity to softness and their free uncombined situation between two healthy membranes (unaffected either by the morbid effusions which usually complicate their formation on the surface of serous membrances or by the complex structure and presence of mucous bronchial secretion which attend their presence in the lungs), afforded an opportunity of observing, without the possibility of mistake, the progress of the softening of the tubercles *from within outwards* a point which has been questioned by some eminent pathologists.

It is worthy of remark that the seat of the convulsions was on the right side, while the cerebral softening was confined to the left hemisphere, though the tubercular deposit extended equally over both hemispheres.

7

Notes on the Climate, &c. of Dadur. By J. Deas, Esq.

Presented by the Medical Board, November 1841.

Having arrived at Dadur on the 30th March last, I can only speak of the climate, &c. from that date, up to the present time; the hot season commenced about the 1st of April, the heat gradually increased till the beginning of May, when it became intensely hot, and continued to increase in intensity up to the end of June. From the 15th of May, to the 5th of June, strong hot winds blew all day and all night, this was followed by an almost equally unbearable, close, and suffocating heat, when a slight change took place for a few days: after this the same suffocating heat which prevailed in June, was again experienced until the 30th of July, when a slight fall of rain brought a little relief during the day. In August the heat was equal to what is felt at the height of the hot season in Hindustan, but having the nights considerably more close and oppressive; from the 15th of May, to the 30th of July, no comparison (so far as my experience goes) can be drawn between the heat of Dadur and that of the hottest place in Hindustan. Mr. Elphimstone says in his history of Cabool that "The heat of Scinde is equal to that of Damaum, and increases as we go towards the south, till it is moderated by breezes from the sea, and that Sebee (which is close to Dadur) is the hottest place in Cabool." As Dadur is so much

farther south than Damaum, and still is not for enough to derive benefit from any breezes from the sea. The heat must be (if Mr. Elphmstone's calculation is correct) beyond the imagination of any one who has not felt the miseries of being exposed to it.

From the 15th of May to the end of June, the Thermometer averaged 125 in the shade during the day, and fell only a very few degrees during the night, and it has been nearly as high as this when there was not a breath of air stirring. Exposure from sunrise to sunset (even among the natives of the place) leading to the most fatal consequences. Several cases have come under my immediate care, where men in their usual health, have not been exposed for more than ten minutes to this destructive sun when they fell, as if struck down by a fit of apoplexy and remained in this state, until death closed the scene which it generally did in two hours' space of time, notwithstanding immediate medical assistance being afforded to them. The nights were (if possible) more distressing to the feelings, and destructive to health than the days, sleep being entirely prevented during the first and middle part of them by the feverishness and restlessness caused by the great heat, combined with the withering hot wind which usually sprung up as the sun went down and continued to blow frequently with great force,) until about 4 o'clock in the morning, when the exhausted system, had a couple of hours respite from its tortures in sleep, but even this short repose was not to be calculated upon, as the hot winds did not always cease at this hour, but continued to blow until sunrise. This wind generally blew, from the SW. when no hot wind blew the component gasses of the atmosphere (seemed to the feelings) to have undergone a change in their relative proportions, a feeling as if a great part of the oxygen (the supporter of life) had been withdrawn and the proportion of the carbonic acid increased (in fact resembling very much the feeling a person experiences in descending into an old deserted coal mine, in which there is not a free ventilation) thus rendering the act of respiration, both painful difficult, and imperfect.

The baneful influence of such continued want of rest, combined with the extreme heat of both day and night, was soon apparent in the destruction of the tone of the stomach, and in causing an influx of other evils, which in a very short space of time shook the constitution of even the very strongest to its foundation. The Hospital Returns given in reply to question 2d. showing the number of sick per cent during the months of April, May, June, July, and August, do not according to my opinion, afford a true criterion for guidance in considering the suitableness of the climate of Dadur during the hot season as regards troops, as those returns only show the number received into Hospital labouring under severe and acute, diseases, had all the men been (who from general debility, &c. were unable, efficiently to perform their duties) admitted into Sick Quarters, I am under the mark, when I say that the returns would have shown at least 80 per cent. The proportion of deaths have also been fewer in number than might have been expected, still this speaks little or nothing in favour of the climate, because although its effects have not been the cause of the immediate loss of any very great number of men, it has laid the foundation of diseases which it is to be feared, will before long, deprive the state of the services of many of those who have escaped its immediate fatal effects. The men as a body are at this present moment so debiliated and prone to disease from the long and constant exposure to the great heat, &c.

which they have undergone, that were they brought under any of the usual exciting causes of fever, dysentery, &c. my opinion is, that very few would escape.

I cannot give an opinion as to the suitableness of the climate for Troops during the cold season, but I have no hesitation in stating it to be my professional opinion that Dadur can be occupied during the hot season, only at a fearful sacrifice of life and health.

Reply to Query 2d. viz. sick per cent.

During	the Month of April..	16
Ditto	Ditto of May...	39
Ditto	Ditto of June...	31
Ditto	Ditto of July...	21
Ditto	Ditto of August.	11

Reply to Query 3d. viz. Number of Troops at the Station and number of deaths during the last five months.

Strength of the Head Quarters of the 6th Regt. Native Infantry	643
Ditto Poona Irregular Horse	185
Ditto Golundauze	72

Number of Deaths.

Head Quarters 6th Regiment Native Infantry	11
Poona Irregular Horse	8
Golundauze	1

Reply to Query 4th. The season, &c. showing the last and worst for the Troops.

I am unable to reply to this question as regard the cold season, and I have already in answer to Query 1st stated my opinion as regards the climate during the hot months.

Reply to Query 5th viz. The sort of accomodation the Troops have had, &c.

The greater number of the men were in huts and the remainder in tents, the huts being low and thinly covered, afforded very little better protection from the heat than the tents did. I do not think that the men in the latter, suffered more from disease than those in the former. Had the men been properly housed in, sickness would, in my opinion, have prevailed to a somewhat less extent, nevertheless I am of opinion that with the best possible accomodation the hot season at Dadur would always prove destructive to Troops.

Reply to Query 6th, viz. The particular months during which each station is most unhealthy and the causes.

I am unable to answer these questions.

Reply to Query 7th, viz. The unhealthiness generally of particular places.

I am unable to answer this question.

Reply to Query 8th, suggestion as clothing, &c.

The lighter the clothing is during the hot months so much the better.

8

Obscure Case of Phthisis Pulmonalis. By J. D. Campbell, Esq.

Michael Riddin, ætat. 20, embarked for Bombay at Gravesend on the 24th October, 1841. He used to be active and cheerful in barracks at Bromptom, but was noticed to become melancholy and silent when he left the channel. He twice took medicine on board ship for slight headache, which yielded to trifling remedies, and said that except being rather weak, that he was quite well. Was admitted into the sick bay on board the "Donna Pascoa" on the 2d February, 1841 at sea, for diarrhœa which he said was not very troublesome, though he had noticed it for about six weeks. On examination, I found his chest very much contracted; countenance sallow; dark complexion; and a general heat of skin. He had no cough, no headache, night sweats, griping, or tenesmus. The abdomen was not in the least degree tender on pressure, There was no sickness. The only indications of disease being the diarrhœa. great emaciation, heat of the surface, and pulse 104.

He was ordered rice diet, Hyd. Chlorid. gr. vi. Rhei. Pulv. gr. x. statim Ol. Ricini, ℥i. post horas quatuor.

4th. — The frequency of the calls to stool was diminished by the medicines, but he continued very weak. Decoct. Cinchonæ ℥iss, ter in die.

6th. — On the 6th I found him decidedly improved, though still very weak and I gave him one pint of porter daily.

9th. — He continued well till the 9th, when he complained of griping. Ol. Rici. ℥ss. statim. which produced a light brown fluid motion, not very copious. I now commenced with, alterative doses of calomel as follows. Hyd. Chlorid. gr. i. Pulv. Ipecac. Comp. gi. x. secundis horis. Sago ad. libitum. He continued to emaciate, and on the 11th felt a little uneasiness in the epigastric region, which however was very trifling and yielded immediately to Pulv. Rhei. gr. xv. Cinaomom comp. x. Creta p. p. gr. v. I ordered him fresh meat and Port wine daily.

On the 14th he felt quite well; the pulse came down to 88; the tongue was clean; skin cool; and purging absent.

On the 15th the purging returned, but as before unattended by any pain, sickness or other morbid, symptom. The emaciation increased, I administered, Quin Disulph. gr. i ter die, and he continued in the same state without material alteration till the 25, when I ordered Ferri Sulphat. gr. xii. Mic. panis q. s mft. pilul xii. Sumat 1 ter in die.

On the 28th the purging having increased, I ordered Mist. Cret. Comp. ℥i. quater die.

March 2nd. — The uneasy sensation in the epigastrium having returned, I ordered a mustard cataplasm to be applied, which afforded considerable relief.

As the man was emaciating to a degree which appeared unaccountable, there being, as I before noticed, no apparent symptom of Phthisis or other organic disease, I carefully examined him in company of my friend Mr. T. C. Jervis, the surgeon of the ship, and though we were led to believe in the existence of Phthisis, we detected nothing unusual by the stethoscope. * He had no *cough*,

* N. B. The noise on board the ship necessarily precluded a very satisfactory stethoscopic examination.

difficulty of breathing or night sweats ; no spitting and a total absence of pain of any kind. The purging also was not very urgent, and occasionally while under treatment left him entirely for 24 or 40 hours.

8th. — On the 8th of March he became so debilitated as to be unable to move in his cot without assistance and I gave him, vini rubri ad libitum. Pil. Ferri co. bis die, and omitted other treatment.

10. — On the 10th he rallied a little, and I exhibited, Decoct. Cinchonæ ℥i. ter in die : as the purging continued I also continued Mist. Creta. co. C. Opii. 4ter die.

His motions have continued watery and feculent up to the present time.

On the 15th his countenance became very anxious, I omitted the pills of sulphate of Iron and gave him, Mist. Quinœ. Disulph. ter in die and also Mist. Creta c. Opii post sing. sedes liquidas.

The purging having somewhat increased on the 17th, I ordered him, Pulv. Kino. Comp. gr. x.

He now refused all nourishmsnt, and appeared rapidly sinking. For two days he was constantly supported with wine, brandy and ammonia, and at the same time took, Pulv. Kino. Com. gr. xv. bis die : I also injected a pint and a half of gravy twice a day.

The purging increased and was very troublesome during the night, his aspect had now become very anxious ; the pulse 96, full and strong ; skin hot and dry ; tongue clean and moist ; sordes collected on the lips ; no headache or pain of any kind. I administered Cupri Sulphat gr. iii. Mica panis q. s mft. pil. xii. cujus sumat unam ter in die.

21st. — On the morning of the 21st the pulse was 104 ; thready ; lips and tongue glazed.

Injection of four pints warm water night and morning : during the day he wandered a little and had some few convulsive movements of the hands. The wine was continued and the sulphate of copper with equal part of opium. The purging was arrested for a time. He was purged twice in the night and the motions contained a good deal of pus.

22nd. — On the morning of the 22nd he passed two immense clots of blood by stool. His respiration at 11 A. M. was fifty per minute, and after supporting him with the mist. Vini Gallici, Æther and Ammonia. he expired at a quarter to 2 o'clock P. M. at the instant that the anchor was let go in Point de Galle roads. I made an examination of the body one hour and a half after death in the presence of my friend Mr. Jervis, and we discovered the following morbid appearance.

Necroscopia. — The external appearance of the body was exsanguineous ; extremely emaciated chest ; very narrow ziphoid cartilage, considerably bent inwards, no ecchymoses.

Thorax. — The surface of the lungs was studded with innumerable tuberculous patches. A fistulous excavation was found in the apex of the right lung : both lungs contained enormous quantities of tubercles in a crude state ; throughout the whole of their substance slight adhesions of the pleura were found on the right side, and very old extensive adhesions on the left side.

The heart was unusually small, and there was concentric hypertrophy of the right ventricle ; pericardium natural.

Liver. — This organ was also very small, pale and friable. The peritoneum

was adherent in many places, especially over the liver and pylorus. It also contained *numerous tubercles.*

Spleen. — Natural; pancreas natural; the stomach was much distended with air.

There was very extensive ulceration throughout the *whole* course of the intestinal canal, but more especially in the ileum and colon. There was also a gangrenous patch in the upper part of the descending colon and one in the rectum. Kidneys and bladder natural.

Remark. — This case appears to demonstrate the enormous extent of organic disease, which may exist independent of the patient suffering pain. This man never complained at any time, and the diarrhœa may be said to have been the only prominent symptom.

9

Letter on the treatment of the Aden ulcer from Dr. Pruner, Chief Physician to the Military Hospital and Professor in the Medical College at Cairo, to the Members of the Medical Board in Bombay.

Frequent reports brought up by travellers from the Red Sea with regard to the difficulties experienced at Aden in the treatment of what the Arabs call the *Yemen ulcer*, have engaged me to submit to your attention the result of considerable experience acquired during my abode on the Arabian coast. The only interest I have in presenting you these few lines, is a sincere hope and wish to be enabled to contribute in however small a degree towards the relief of human suffering; and I feel certain that actuated by this principle, my observations will not fail to receive your kind consideration and indulgence.

Without pretending to furnish here a learned treatise upon the causes, advance and nature of the ulcerous disease affecting the troops at Aden, I will only venture to propose to you the use of the blue vitrol (sulphas cupri) as the, most effective means I could discover for checking the progress of the ulcer, and even for healing it in very advanced stages.

A few words will be sufficient to explain the treatment I have adopted for about seven years, and to show upon what principles its success depends. I believe it very essential to stop the progress of the disease in its commencement and it is then chiefly that my method is successful. Whenever a wound breaks out and shows an unclean pulpy, grey, &c. surface, I cover it with a very thin stratum of fine prowdered sulphate of copper, and upon that lay nothing but dry lint; on the following day I find commonly the wound reduced to the state of an ulcus simplex with the healthiest aspect; if not, I repeat the practice a second time; but the sulphate of copper very seldom fails in the first instance. The whole success depends on employing it in the beginning. I never saw any case if taken in time, dispose itself unfavourably, neither in Arabian soldiers nor even in some English sailors and other Europeans whom I had occasion to to treat at Gedda.

Even when the disease was more advanced, as I saw unfortunately in many cases in the Military Hospitals, I found that a mixed local treatment according to my method was still more satisfactory than other proceedings.

The surfaces of these horrible ulcers in advanced stages, always present a more or less unequal state as f. i. large spots red and covered with fine granulations, while other parts are depressed and of a foul aspect. I treat the former portions according to the common principles of helcology and attack the latter with the sulphate of copper in the before mentioned way, which treatment I may add, left me the satisfaction of knowing that I had relieved many perhaps from a certain death.

I feel it unnessary to extend myself more in explanation of the local treatment. One other observation only I beg leave to offer. The evil being rather of a scorbutic than any other description, I believe that every circumstance bearing upon this class of diseases should be fully considered with regard to the regimen and constitutional treatment. But little interior treatment will be requisite if the evil is duly attacked in its beginning. All mercurial treatment seems to me dangerous ; I never saw mercury less supported by patients of any race and kind than on the coasts of the Red Sea ; it promotes and produces there quickly the most deplorable scorbutic decomposition in the human frame.

The above few remarks I offer with deference to so distinguished an arm of my profession as the body of Medical Gentlemen composing your Board with the greatest respect for whom I have, &c.

10.

* *Bombay Branch of the Royal Asiatic Society.*

Resolutions passed by the Bombay Branch of the Royal Asiatic Society.

I. That the present Museum room of the Society be appropriated solely for the purpose of a museum.

II. That a fixed proportion out of the subscriptions of members to the Society be appropriated to the Museum, viz 20 Rupees from Resident and 15 Rupees from Non-resident Members.

III. That a subscription for the first outlay be opened immediately.

Rules adopted for the care of the Museum.

I. That care of the property in the Museum shall be vested in curators elected from the Members of the Society.

II. That the curators shall be responsible for the adoption from time to time of such measures as may seem to them expedient for the preservation and exhibition of the specimens, submitting such to the Society as may involve expence.

III. That the curators shall, at their option, receive and dispose of donations, and shall dispose such sums as the Society may place at their disposal for the illustration of each class of subjects.

* The Committee have much pleasure in making these resolutions of the Bombay Branch of the Royal Asiatic Society, generally known to members of the Medical and Physical Society, with the view of its leading to effective co-operation in the promotion of so very useful an undertaking.

IV. They shall direct correspondence with the individuals or societies for the furtherance of these objects.

V. The curators shall have the power of appointing their own officers and the subordinate servants of the institution, and shall submit yearly a report of what has been done and the estimated expenses of the establishment for the ensuing year, for the sanction of the society.

Rules adopted for making the Museum available to the public.

I. The Museum shall be open for public inspection on Mondays and Thursdays between 10 A. M. and 1 P. M. and 3 P. M. and 6 P. M.

II. No Specimens shall be allowed to be taken out of the cases or handled on these days, and between these hours.

III. The Museum will be available for study on Tuesdays and Fridays of the week at the same times.

IV. Members of the Society will have free access to it at all times when the servants are there.

V. Subscriptions of 5 Rupees a month or 20 Rupees per annum paid in advance, shall give the same free access as to Members of the Society.

VI. The curators shall have power to prohibit the opening of such cases as would derive injury from general inspection, without their sanction.

VII. The curators shall have power to give tickets to such respectable students in any of the public institutions as may desire to study any of the Classes of subjects contained in the Museum.

VIII. That on Saturdays the Museum shall be available for public instruction under the control of the curators who shall have the sole power of deciding to whom and to what extent, this liberty shall be granted, and applications shall be made at least a week before the use of Museum is requested, and must specify the exact time and purposes for which the use of the Museum is solicited.

QUARTERLY PROCEEDINGS

OF THE

MEDICAL AND PHYSICAL SOCIETY OF BOMBAY.

COMMITTEE OF MANAGEMENT FOR 1841.

President.

J. McADAM, ESQ.

Members.

R. H. KENNEDY, M. D. J. McLENNAN, ESQ.
J. GLEN, ESQ. J. F. HEDDLE, ESQ.

Secretary.

C. MOREHEAD, M. D.

Proceedings from 1st October, to 31st December, 1840.

MEMBERS ELECTED.

Ordinary.

W. Arbuckle, Esq., Assistant Surgeon, Bombay Establishment.

J. F. Morier, Esq.; and G. M. S. Seaward, Esq.; Assistant Surgeons, elected in accordance with Regulation 7.

Communications Presented.

1. Letters from Sir J. McGrigor, Bart. Director General of the Army Medical Department; the Royal College of Surgeons London; the University College London; E. Barlow, M. D.; J. Hope, M. D.; and the Deputy Inspector General of Hospitals at Madras, acknowledging the receipt of the Society's Transactions.

2. A letter from C. R. O. Bloxham, Esq., forwarding a Dissertation on the Ulcer of Yeman, drawn up by M. M. Chedufay, Physician Inspector of the Armies of Arabia.

This Dissertation was accompanied with coloured drawings of the different stages of the ulcer, which is similar to that, from which the Sepoys at Aden, have suffered.

3. A case of dislocation of the lower jaw caused by the act of vomiting; communicated by W. Mackie, Esq.

4. Surgical cases which occured at Balmeer, by A. Campbell, Esq.

5. Register of the Pluviometer at Bombay, from the year 1837 to 1840, presented by G. Noton, Esq.

Proceedings from 1st January, to 31st March, 1841.

MEMBERS ELECTED.

Ordinary.

W. A. R. Nicholson, Esq. Assistant Surgeon, Bombay Establishment.

G. Baines, Esq.; T. B. Larkins, Esq.; S. McMorris, Esq.; H. S. Moore, Esq.; G. J. Shaw, Esq.; E. Impey, Esq.; R. Dent, Esq.; Assistant Surgeons, elected in accordance with Regulation 7.

Communications Presented.

1. A letter from T. Loinsworth, Esq. Deputy Inspector General of Hospitals, enclosing a donations of Rs. 100, for the furtherance of the objects of the Society.

2. A letter from Mr. Richardson, Bookseller, 23 Cornhill, intimating the parties to whom copies of the 2nd Volume of the Society's Transactions had been presented.

3. A letter from J. Murray, Esq. forwarding a specimen of a species of Sivertia, a bitter tonic which grows in considerable abundance on the Mahableshwur Hills.

4. A letter from the Assistant Inspector of Her Majesty's Hospitals at Mauritius, acknowledging the receipt of the 2nd Volume of the Society's Transactions.

5. A letter from W. B. O'Shaughnessy, M. D., Professor of Chemistry in the Medical College of Calcutta, presenting to the Society a copy of his pamphlet on the preparations of the Indian Hemp or Gunjah.

The Society is also indebted to Dr. O'Shaughnessy for a specimen of the Extract of Hemp.

6. Return of the diseases of the heart and aorta in H. M. 2nd or Queen's Royal Regiment, from January 1st 1834, to 31st December 1838, shewing also the diseases with which they have been associated, or under which, they have been masked: — also, a Return shewing the comparative mortality by diseases of the heart and aorta in the same Regiment, during the above period, by R. H. A. Hunter, Esq. Assistant Surgeon H. M. 2nd or Queen's Royal Regiment.

7. The second half yearly report for 1840 of the Oculists department, by M. Stovell, Esq. presented by the Medical Board.

8. Cases of cardiac and aortic disease, by R. H. A. Hunter, Esq. H. M. 2nd or Queen's Royal Regiment.

9. Case of extensive tubercular deposition over the convex surface of the brain, with softening of the left hemisphere and slight serous effusion into the lateral ventricles, by J. Murray, Esq., presented by the Medical Board.

10. Experiments illustrative of the Physiological effects of Calomel on the Gastro-intestinal mucous membrane of Dogs, by J. Murray, Esq.

Proceedings from 1st April, to 30th June, 1841.

MEMBERS ELECTED.

Ordinary.

J. D. Campbell, Esq.; T. Lodwick, Esq.; P. Cruickshank, Esq.; G. H. Dickinson, Esq.; R. D. Peele, Esq.; W. H. Pigou, Esq.; T. W. Ward, Esq.; E. Ellis, Esq.; W. Thom, Esq.; R. R. Smith, Esq.; J. Sproule, Esq.; E. I. P. Pridham, Esq.; and W. Bowie, Esq.; Assistant Surgeons, Bombay Establishment, elected in accordance with Regulation No. 7.

Communications Presented.

1. A letter from I. Dorward, Esq., Assistant Surgeon, Madras Establishment, requesting that his name may be withdrawn from the list of members.

2d. A letter from A. B. Orlebar, Esq., Secretary to the Museum Committee of the Bombay Branch of the Royal Asiatic Society, forwarding the rules of the Museum established by the Asiatic Society.

3. Remarks on Military Hospitals with suggestions relative to a new method of ventilation, by Captain J. H. Ottley, 26th Regiment, N. I., Assistant Civil Engineer, Khandesh, presented by the Medical Board.

4. A letter from J. D. Campbell, Esq, presenting a series of Anatomico-chirurgical plates for the use of the Society.

5. General remarks on the remedial effects of the extract of Gunjah, as observed at the Native General Hospital at Bombay, with two cases of Tetanus treated in that institution, by A. Graham, Esq.

6. An Original Communication from Dr. Pruner, Chief Physician to the Military Hospital at Cairo, in Egypt, relative to the employment of the Sulphate of Copper in the treatment of the Aden Ulcer, presented by the Medical Board.

7. Three cases of Cardiac disease, by R. H. A. Hunter, Esq., Assistant Surgeon, H. M.'s 2d Queen's Royal.

8. Annual reports of the 1st Troop Horse Brigade, for 1838, 39, and 40, by A. H. Leith, Esq., presented by the Medical Board.

9. Annual report of the 15th Regiment, N. I. for 1840, by A. Graham, Esq. presented by the Medical Board

10. Annual report of the 10th Regiment, N. I. for 1840, by C. Black, Esq. presented by the Medical Board.

11. Annual report of the European Regiment, stationed at Aden, for 1840, by J. P. Malcolmson, Esq., presented by the Medical Board.

12. Report of the diseases which have occurred in the Hon'ble Company's Steam Flotilla on the rivers of Mesopotamia, from the 1st January 1839, to the

31st December 1839, with a short sketch of the climate and topography, by J. Floyd, Esq., presented by the Medical Board.

Proceedings from 1st July, to 30th September, 1841.

MEMBERS ELECTED.

Corresponding.

Sir G. Ballingall, Professor of Military Surgery, Edinburgh, and Dr. Laidlaw, of Alexandria.

Ordinary.

E. J. Wallace, Esq.; G. F. Forbes, Esq.; D. Milligan, Esq.; J. J. Faithful, Esq.; S. M. Pelly, Esq.; G. M. Ogilvie, Esq.; T. Cannan, Esq; T. A. Boyrenson, Esq.; J. M. Lowry, Esq.; W. L. Cameron, Esq., J. E. Batho, Esq.; W. Collum, Esq.; F. Manisty, Esq.; H. Hudson, Esq.; G. Allender, Esq.; Assistant Surgeons Bombay Establishment, elected in accordance with Regulation No. 7.

Communications Presented.

1. Letter from E. Barlow, M. D., and the Secretary to the Medical Society of Madras, acknowledging the receipt of the 3rd volume of the Society's Transactions.
2. A letter from J. D. Campbell, Esq., acknowledging the receipt of the three volumes, of the Society's Transactions.
3. Observations on Dracunculus as it prevailed in the 22nd Regiment N. I. from April till September, 1841, by D. Grierson, Esq., presented by the Medical Board.

LIST OF DONATIONS FOR THE LIBRARY.

By the Editor

Madras Quarterly Journal, 2d Vol.

By the Royal College of Surgeons.

Catalogue of the Library of the Royal College of Surgeons, 1st & 2d Vols.

By the Author.

Memoir on the Fossils of the Eastern portion of the great Basaltic District of India, by J. G. Malcolmson. Esq.

By the Medical Board of Bombay.

Practical Essay on some of the principal Surgical diseases of India, by E. H. Brett, Esq., M. R. C. S. L.

By the Asiatic Society of Bombay.

Journal of the Bombay Branch Royal Asiatic Society. No. I.

LIST OF MEMBERS

OF THE

MEDICAL AND PHYSICAL SOCIETY OF BOMBAY.

ORDINARY MEMBERS BOMBAY PRESIDENCY.

The asterisk (*) marks those members who are absent on furlough or sick leave

Allender, G., Esq., *Assistant Surgeon.*
Arbuckle, W., Esq., *Assistant Surgeon.*
Arnott, A., M. D., *Assistant Surgeon.*
Arnott, F. S., M. D., *Assistant Surgeon.*
Atkinson, J. J., Esq., *Assistant Surgeon.*

Babington, W. T., Esq., *Assistant Surgeon.*
Barrington, W. B., Esq., *Assistant Surgeon.*
Batho, J. E., Esq., *Assistant Surgeon.*
Behan, R. J., Esq., *Assistant Surgeon,*
* Bell, D. C., Esq., *Superintending Surgeon.*
Black, C., M. D., *Assistant Surgeon.*
Bloxham, C. R. O., Esq., *Assistant Surgeon.*
* Bourchier, J., M. D., *Assistant Surgeon.*
Bowie, W., Esq., *Assistant Surgeon,*
Boyd, J., Esq., *Surgeon.*
Boyrenson, A., Esq., *Assistant Surgeon*
Brickwell, J., Esq., *Assistant Surgeon*
Brown, R., M. D., *Surgeon.*
Burn, A., M. D., *Assistant Surgeon.*
Burnes, J., K. H., M. D., *Surgeon.*

Cahill, F. S., M. D., *Surgeon.*
Cannon, T., Esq., *Assistant Surgeon.*
Cameron, W. C., Esq., *Assistant Surgeon.*
Campbell, A., M. D., *Assistant Surgeon.*
Campbell, J. D., Esq., *Assistant Surgeon.*
Carter, J. H., Esq., *Assistant Surgeon.*
Clark, T., Esq., *Assistant Surgeon.*
Colller, C. F., Esq., *Surgeon*
Collum, W., Esq., *Assistant Surgeon.*
Craig, J., Esq., *Assistant Surgeon.*
Cramond, J., Esq., *Assistant Surgeon.*
Cruickshank, P., Esq., *Assistant Surgeon.*

Davidson, R. H., Esq., *Assistant Surgeon.*
Dent, R., Esq., *Assistant Surgeon.*
Dickinson, G. H., Esq., *Assistant Surgeon.*
Doig, J., Esq., *Surgeon.*
Don, J., M, D., *Surgeon.*
* Ducat, C., M. D , *Surgeon.*
Duncan, A., Esq., *Surgeon.*

Elliott, W. R., Esq., *Assistant Surgeon*
Ellis, E., Esq., *Assistant Surgeon.*

Faithful, J. J., Esq., *Assistant Surgeon.*
Fogerty, W. K., Esq , *Surgeon in Bombay*
Forbes, G. F., Esq., *Assistant Surgeon.*
Fraser, J., Esq., *Assistant Surgeon.*
* Frith, R., M. D., *Surgeon.*

* Gibb, H. Esq. *Surgeon.*
Gibson, A., Esq., *Surgeon.*
Gillanders, W. P., Esq., *Assistant Surgeon*
Glen, J., Esq., *Superintending Surgeon.*
* Gray, P., Esq., *Assistant Surgeon.*
Graham, A., Esq , *Surgeon.*

Hamilton, J., J. Esq., *Assistant Surgeon*
Hathorn, H. P., Esq., *Assistant Surgeon.*
Heddle, J. F., Esq., *Assistant Surgeon.*
Hoskin, R., Esq., *Assistant Surgeon.*
Hudson, Esq., *Assistant Surgeon.*
Hunter, R. H. Esq., *Assistant Surgeon, Her M's. 2d.*

Impey, E., Esq , *Assistant Surgeon*
* Inglis, J., M. D., *Surgeon.*
* Johnstone, H., Esq., *Surgeon.*

Kays, M. T., M. D., *Surgeon.*
Keith, J., Esq., *Assistant Surgeon.*
Kennedy, R. H., M. D., *Medical Board*
Kirk, R., Esq., *Assistant Surgeon.*

Larkins, T. B., Esq., *Assistant Surgeon.*
Lowry, J. M., Esq., *Assistant Surgeon.*
Lodwick, T., Esq., *Assistant Surgeon.*
Leith, A. H., Fsq., *Assistant Surgeon.*
Lush, C., M. D., *Surgeon.*

Mackie, W., Esq., *Surgeon in Bombay.*
Malcolmson, J. P., Esq., *Assistant Surgeon.*
Manisty, T., Esq., *Assistant Surgeon.*
McAdam, J., Esq., *Medical Board.*
McLennan, J., Esq., *Surgeon.*
* McKenzie, T., Esq., *Assistant Surgeon.*
McKenzie, J., Esq., *Assistant Surgeon.*
* McMorris, J., Esq., *Surgeon.*
McMorris, S., Esq., *Assistant Surgeon.*
Milligan, D., Esq., *Assistant Surgeon.*
Montgomery, A., Esq., *Surgeon.*
Moore, S., Esq., *Assistant Surgeon.*
Morier, J. F., Esq., *Assistant Surgeon.*
Morehead, C., M. D., *Assistant Surgeon.*
Murray, J., Esq., *Assistant Surgeon.*

Neilson, W., Esq., *Assistant Surgeon.*
Nicholson, W. A. R., Esq., *Assistant Surgeon.*

Ogilvie, G. M., Esq., *Assistant Surgeon.*
Owen, R. B., M. D., *Surgeon.*

Patch, J., Esq., *Surgeon.*
Peart, J. H., Esq., *Assistant Surgeon.*
Peele, R. D., Esq., *Assistant Surgeon.*
Pelly, J. M., Esq., *Assistant Surgeon.*
Pigou, W. H., Esq., *Assistant Surgeon.*
Pitcairn, W., Esq., *Assistant Surgeon.*
Pridham, J. P., Esq., *Assistant Surgeon.*

* Ranclaud, M. A., Esq., *Assistant Surgeon.*
Ritchie, D., M. D., *Assistant Surgeon.*
Rooke, B. P., Esq., *Assistant Surgeon.*
Ross, J., Esq., *Assistant Surgeon.*

Scott, J., Esq., *Surgeon.*
Seaward, G. M. S., Esq., *Assistant Surgeon.*
Shaw, G. J., Esq., *Assistant Surgeon.*
Smith, R. R., Esq., *Assistant Surgeon.*
Sproule, S., M. D., *Assistant Surgeon.*
Sproule, J., Esq., *Assistaat Surgeon.*
Stewart, J., M. D., *Assistant Surgeon.*

Tawse, A., Esq., *Surgeon.*
Taylor, W. B., Esq., *Surgeon.*
Thompson, M., Esq., *Assistant Surgeon.*
Thom, W., Esq., *Assistant Surgeon.*

Walker, A., M. D., *Assistant Surgeon.*
Wallace, E. T., Esq., *Assistant Surgeon.*
Waller, T., Esq., *Assistant Surgeon.*
Watkins, W., Esq., *Assistant Surgeon.*
Ward, T. W., Esq., *Assistant Surgeon.*
* West, A., Esq., *Assistant Surgeon. H. M.'s*
Wight, R., Esq., *Surgeon.*
Winchester, J. W., Esq., *Assistant Surgeon.*
Woosnam, R., Esq., *Assistant Surgeon.*
Wright, A., Esq., *Assistant Surgeon.*

W. B. O'Shaughnessy, Esq., *Professor of Chemistry Medical College Calcutta.*
J. P. Jackson, Esq., *Bengal Establishment.*
H. S. Fleming, Esq., *Surgeon, Madras Establishment.*
W. Middlemas, Esq., *Assistant Surgeon, Madras Establishment.*
A. Anderson, Esq., *Acting Surgeon to H. B. Majesty's Superintendent in China.*
J. G. Malcolmson, Esq. *Formerly Surgeon Madras Esblishment.*

CORRESPONDING MEMBERS.

J. S. Law, Esq., *B. C. S.*
Captain Shortrede, *Superintendent of the Trigonometrical Survey.*
Dr. Pruner, *Chief Physician to the Military Hospital and Professor in the Medical College at Cairo.*
M. M. J. Desjardins, Esq., *Secretary to the Society of Natural History in Mauritius.*
Sir George Ballingall, *Professor of Military Surgery, Edinburgh.*
Dr. Laidlaw, *Alexandria.*

LONDON SCHOOL OF LIBRARY

WELLCOME
LIBRARY
INSTITUTE